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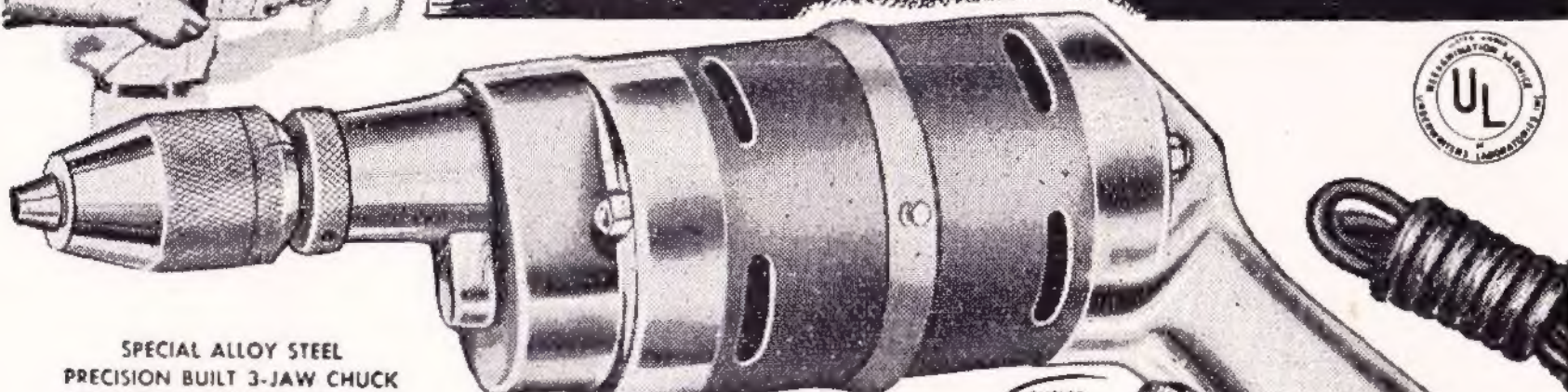
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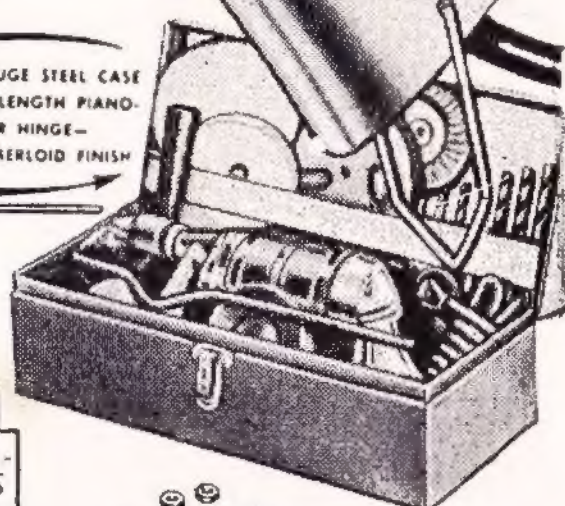
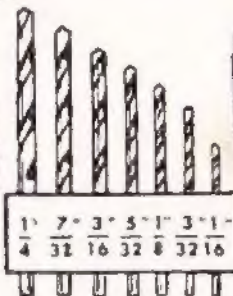
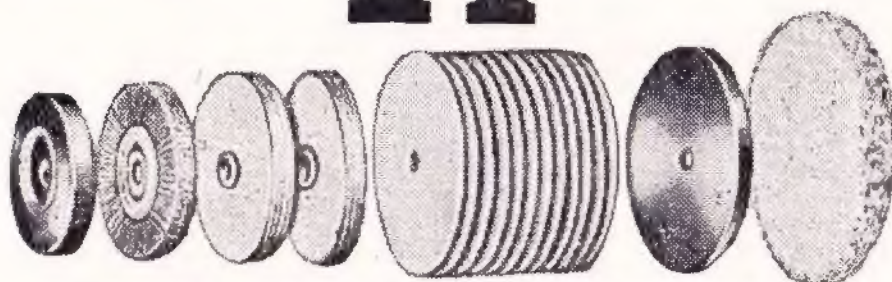
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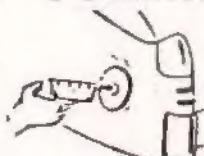
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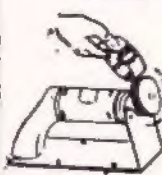
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AN EDITORIAL ON SPACE SUITS

For twenty-five years or more, one of the bitterest battles of science-fiction has involved the question of what a space-suit must be like. Writers and experts have been about evenly divided on both sides, and equally positive about their ideas. Only the artists have remained fairly neutral, sticking to what looked good and disregarding the arguments.

The latest victories seem to have gone to the heavy-armor boys, for some reason. A few years back, the Weinbaum school came up with the idea that about all a man needed was a little tube to carry air to his lungs, and maybe a helmet. But now a man in space has to go out with seven hundred pounds of insulation, built like a pressure tank, and with either carefully articulated joints or artificial extensions for limbs.

The current arguments seem logical. Blood boils at the temperature of the human body in a vacuum. And nobody with boiling blood—outside the old mellerdramers—feels comfortable or lives very long. Likewise, there's a limit to human strength. In a suit with a ton of pressure for every square foot, bending the limbs seems like a pretty nearly impossible trick, because such pressure will hold a suit out as rigidly as a rubber hose that changes from limpness to rigidity with water pressure.

The old arguments were equally logical. Space is a vacuum, which means it has no superior as an insulator. Men have come up from under water, where their body pressure rose to thirty pounds a square inch, into normal air where the pressure was only fifteen pounds without injury—particularly if they were breathing oxygen and helium, with no nitrogen to give them the bends. Obviously, then, the human body can stand a change of pressure downwards by fifteen pounds, and won't even have to use a space-suit.

The trouble with that is that putting the body at one pressure—approximately zero—and giving the lungs air at any normal pressure is asking too much of the thin walls of those lungs!

Some kind of a suit is going to be needed, with provision for cooling. That could probably be done by the simple trick of letting a little spray of water hit the suit; it evaporates furiously in space, and cools the body. You know, though . . . the human body has a perspiration system that does the same thing—so maybe it wouldn't get hot, after all! But

with a suit, we need cooling, and we need the suit to protect us by keeping the pressure the same as that of the oxygen we breath.

Let's make one simple assumption, however—namely, that men have some intelligence, and that those who design suits for men in space will use a little of it. Why carry along the useless weight of nitrogen or even helium to pad out our oxygen, and then keep the pressure of that oxygen up to Earth normal so people can get enough oxygen? Why not simply start out with a ship using about *three* pounds pressure of pure oxygen, with no filler?

If we do that, we begin to get a different picture. The resistance of the suit to pressure changes still exists—but the force tending to keep the suit stiff is now only one-fifth. And a pretty thin substance can hold such a pressure. Suppose we include an elastic membrane somewhere on the back; like a balloon, this swells out with more pressure, and contracts with less—equalizing the volume of the suit for changes caused by bending. Or we can rig up an expansion tank with pressure valves and let it do the same, getting the little power it needs from the pressurized oxygen in the tank.

Or maybe we can just use porous elastic-webbing suits, skin tight, that will maintain about three pounds pressure per square inch, and only use oxygen in the helmet. This would even permit the body's own automatic cooling system to function.

In fact, maybe Weinbaum was right. A man who has been breathing pure oxygen at a fair pressure for some time can hold his breath for nearly a quarter of an hour. His body can stand a change in pressure equal to fifteen pounds per square inch—since divers have taken such a change. And he carries his cooling and heating system with him. A man, or even a gorgeous cover gal, could quite possibly move from one ship to another without a stitch of clothes on, beyond the demands of modesty, whatever they may be.

Oh, yes, that boiling blood! Unfortunately for the heavy-armor boys, the body doesn't suddenly give up all its pressure. Those cell walls may be thin, but they are strong enough to maintain pressure adequate to prevent the blood misbehaving that way. Blood in an open dish and blood in a closed human body are not the same!

This won't end the war, of course—it's a true holy *jehad* by now. But from where I sit, it looks as if the cover artists were closer to the truth than either side. A light suit with low pressure should do. And if she doesn't play around too long, the gorgeous babe can run around unclothed in space without blowing up. A gal needs her sun-tan, after all!

LESTER DEL REY





MOONWALK

BY H. B. FYFE

ILLUSTRATED BY ORBAN



The radio operator stopped sending out his call and slumped back in the folding chair of canvas and aluminum. Concern showed through the impassivity of his broad, Mexican features.

The footsteps in the corridor outside the radio room pattered lightly because of the Lunar gravity, but with a haste that suggested urgency. Two men entered. Like the operator, they wore dungarees and heavy sweaters, but the gray-haired man had an air of authority.

"Dr. Burney wanted to check with you himself, Mike," said the youth with him.

The operator shrugged.

"Tractor One is okay, Doctor," he reported, "but as Joey must have told you, we've lost Two."

"When was the last time they called in?" asked Burney.

Mike gestured at the map on the side wall, and the elder man stepped over to study it. The area shown was that surrounding the fifty-mile-wide crater of Archimedes.

"The blue line is One and the red is Two," said Mike. "I guess you know the planned routes. Well, the little *x*'s show the positions reported and the times."

Burney glanced briefly at the blue line. From the black square near the northern side of the crater that represented the first major base on Luna, it climbed

slantingly over the ringwall. After zig-zagging down the broken outer slope and skirting a ridge of vein mountains, the line swept in a wide curve north of Aristillus and Autolycus, the next largest craters of the region, and moved into that sub-region of the *Mare Imbrium* whimsically christened "Misty Swamp." Thereafter, the blue trail led toward possible passes through the Lunar Apennines to the *Mare Serenitatis*.

"I could expect to lose One," muttered the operator, "in spite of our tower here. But Two shouldn't be blocked by anything yet."

The red line was more direct. Parting from the blue north of the ringwall of Archimedes, it pushed out across the level plain, avoiding isolated mountain ridges and the seven-mile craters of Kirch and Piazza Smyth. After something like three hundred miles, it passed the towering lonely Mt. Pico and probed a dotted delta of possible routes up the ringwall of Plato. This route was *x*'ed almost to Pico.

"They were supposed to report before attempting the descent," mused Burney. "Maybe the depression of the *Mare Imbrium* isn't quite what we estimated. The normal curvature would put a lot of rock between us, in that case. An awful lot of rock."

"Maybe they went over the ringwall in a hurry," suggested Joey.

Burney considered that in a short silence. He ran a hand absently over his balding temple. His lean face became a mask of lines as he puckered up his eyes in thought.

"Number Two has Hansen driving, hasn't it? And Groswald, the mechanic . . . Van Ness, the astronomer . . . and who else?"

"Fernandez from Geology," said Joey.

The entire personnel of the base numbered scarcely fifty. They were just beginning their surface exploration projects after completing the low domes of their buildings. With such scanty resources, Burney was naturally worried about four men and one of the precious tractors.

"They were with us an hour ago," said Mike, fingering his microphone. "Their set must have gone sour."

When no one replied, he hitched around to face his own controls.

"Or else, they're in trouble—"

On the ledge atop the ringwall of Plato, Hansen teetered and tried to maintain his balance by pressing a gauntleted hand against an outcropping of gray

Lunar rock. The thermal-eroded surface crumbled slightly beneath the metal-tipped mitten.

In his bulky spacesuit, he found it difficult to lean very far forward, but he could not bear not seeing. The landship tumbled down the inner slope of the ringwall with horrible deliberation.

"I told them 'Don't move her till I find a way down!'" Hansen muttered. "I told them, I *told* them!"

He was hardly conscious of speaking aloud. Somewhere in the churning mass was the vacuum tractor in which he had driven from Archimedes. Inside, unless it had already been split open, were Van Ness, Groswald, and Fernandez.

The collection of loose rock and dust passed out of sight for a moment over the edge of a terrace. It reappeared further down. Once, Hansen thought he saw a glint of bright metal, but the slide almost immediately plunged down another sheer drop.

The phase of Luna being closer to "new" than to "first quarter," the sun was far too low on the horizon to light the floor of the crater, or even the three mountain peaks on the ringwall to Hansen's right front. The light from the gibbous Earth, however, was bright enough for him to see quite clearly the surface around him.

The slide finally reached the bottom, at this point nearly 3,000 feet below the man's precarious position. He breathed deeply and tried to straighten the ache from his shoulders.

"Must have taken five minutes," he murmured, realizing that he had frozen in a cramped position as he stared.

It had seemed more like an hour. In the dim shadows of the crater floor, the dust settled rapidly because of the lack of air, but the debris remained heaped at an angle much steeper than would have been possible on Earth. Even the slight vibration Hansen had felt through his boots ceased.

He was alone in the dead silence of a world for eons dead.

He stood there, a spot of color in the chrome yellow of the protective chafing suit. The transparent faceplate of his unpainted helmet revealed a blond young man, perhaps twenty-six, with a lean, square-jawed face. Against the tanned skin, his eyebrows were ludicrously light, but the gray eyes under them were wide with horror.

He was of medium height, but the bulkiness of the suit hid his welterweight trimness; and the pack of oxygen tank and batteries for powering radio, heat pads, and air-circulator increased the appearance of stub-

business.

The quiet hiss of the air being circulated through his suit finally aroused him. With painstaking care, he climbed from the ledge to the level terrace on which the tractor was to have remained while he scouted the route down. A hundred yards away, a great bite seemed to have been snapped out of the ridge.

"All the way from Archimedes, and we didn't even get a look at the floor," he whispered.

For a moment, following the raw scar of the slide with his eye, he considered climbing all the way down and venturing out onto the crater floor to examine the ground. For centuries, the floor of Plato had been reported by Earth observers to darken with the rising sun until at noon it was nearly black. Occasionally, there were stories of misty clouds obscuring the surface, and of shifts in the pattern of light streaks and spots.

One of the expedition's first assignments, therefore, had been the investigation of Plato, to check the unlikely possibility that there might be some primitive, airless form of life present. But the present sortie was clearly ended.

"Not one damn' chance," Hansen told himself as he squinted

downward. "None of them had a suit on when I got out."

On a terrace about a third of the way down lay an object with an oddly regular shape. It gleamed in the blue-green earth-light, and Hansen peered more intently. It looked like one of the spare oxygen cylinders that had been carried on top of the tractor.

Hansen abruptly became sensitive about the supply of his suit tank. Before he did anything, even sitting down to think the situation over, he wanted to get down there and find out if the cylinder was full.

Despite his eagerness, he held back until he thought he had spied a reasonable path. It involved going two or three hundred feet out of his way, but Hansen managed to work his way down to the lower level without serious difficulty. Once or twice, he slithered a few feet when loose rock shaled off under his grip, but even with his suit and equipment, he weighed little over forty pounds. As long as he did not drop very far, he could always stop himself one-handed.

He walked back along the level strip which was about fifty yards wide at this point, until he approached the path of the landslip. Near it, apparently having been scraped off as the tractor rolled, lay the cylinder.

He checked it hurriedly.

"Whew! Well, that's some help, anyway," he told himself, discovering that the tank had not been tapped.

He left the cylinder and walked over to the inner limit of the level band. Scanning the steep slope and the debris of the slide, he thought he could pick out two or three scraps of twisted metal. There was nothing to be done.

"I'd better get back up and think this out," he decided.

He took the broken chain that had held the tank to the tractor and hooked a broken link through it to make a sling. For the time being, he contented himself with using it as a handle to drag the lucky supply of oxygen after him.

After regaining his original position, the going was easier to the top of the ringwall. They had come over one of the several passes crossing the southern part of the cliffs, and Hansen walked through in a few minutes. The thickness of the ringwall here was only a mile or so, although at the base it probably approached ten miles.

He came out onto a little plateau, and the dim plain of the *Mare Imbrium* spread out before him. Hansen suddenly felt tiny, lost, and insignificant

"What am I gonna do?" he asked himself.

For the first time, he had admitted his predicament to himself. His gauntlet crept up to his chest where the switch of his radio protruded through the chafing suit.

"Hello Base! Tractor Two to Base! Tractor Two to Base! Over."

He waited several minutes, and repeated the call five or six times. He screwed his eyes shut to throw every ounce of concentration into listening.

No human voice broke into the quiet hissing of the earphones. Hansen sighed.

"Never reach them, of course!" he grumbled. "This set is made to reach about your arm's length."

He remembered that Van Ness had complained about the reception the last time they had called in, and asked Hansen to maneuver to the top of a ridge of vein mountains near the hulking silhouette of Pico. Hansen was higher now, but also much farther from home.

"Mike Ramirez and Joey Friedman aren't the kind to miss a call," he muttered. "It seems to me, Paul E. Hansen, my boy . . . that you are . . . on your own!"

The radio had been but a faint hope, inspired by his height and

tales of freak reception. He was not too disappointed. Looking down the rough outer slope of the ringwall, he saw that it was not by any means as steep as the inner, and that fact settled it.

"Guess I'd better see how far I can get," Hansen decided. "When they don't get the regular report over the tractor radio, they'll probably send out another crew to follow the trail. If I can meet them out a way, maybe even as far as Pico, it'll save that much time."

After considerable fumbling, he balanced the large cylinder on his back atop the other equipment with the chain sling across his chest. He started along the series of gentle slopes the tractor had climbed earlier. Deliberately, he pushed to the back of his mind the possibility he would have to face sometime: Base might decide the crew had been too eager to negotiate the ringwall to call back before being blanked out by the mass of rock.

He had to restrain a temptation to rush headlong down to the plain across miles of rough grades. Even with his tremendous load of equipment, he might still travel in twenty-foot bounds in Lunar gravity; but he had no desire to plunge all the way to the bottom with one misstep.

"It'll be easy enough going down," he murmured. "And after that, I can judge the direction well enough from Earth."

He looked up at the brightness of the planet. Earth was rather high in the Lunar sky, although not overhead because of his position far north. It would indicate roughly his southerly course towards Archimedes. As he looked, he noticed that much of the eastern coast of North America, which to his view was almost centered on the hemisphere, was blanketed in clouds.

"Wish I was there right now," he sighed. "Rain and all!"

He wondered about the next step as he worked his way around ridges radiating from the sizable minor craterlet in Plato's ringwall. He still had a good view of the gray plain at the foot of the heights. Although reasonably flat—probably leveled by the colossal flow of lava that had formed the *Mare Imbrium*, filling older craters and melting down or inundating existing mountains until merely their crests showed—it contained many hills and irregularities that would be even more apparent to a man on foot than from the tractor.

He worked past the craterlet, leaving it to his right. Whenever he struck a reasonably level

stretch, he moved at a bounding trot. The first time he tried this, he tumbled head over heels and gave himself a fright lest he rupture the spacesuit on a projecting rock. Thereafter, he was more careful until he got used to being so topheavy because of the huge oxygen tank.

Finally, scrambling down the last ridges of old debris, he found himself on the level floor of the "Sea of Showers," in the region between Plato and the jutting, lonely Mt. Pico. Off to his right, an extension of the ringwall behind him thrust out to point at the group of other peaks known as the Teneriffe Mountains, which were somewhat like a flock of lesser Picos. The ground on which he stood had perhaps once been part of another crater, twin in size to Plato; but now only detectable by faint outlines and vein mountains. In the past, some astronomers had called it Newton, before deciding upon a more worthy landmark for Sir Isaac.

It had taken Hansen nearly half an hour, and he paused now to catch his breath.

"I feel pretty good," he exclaimed with relief. "I'm carrying quite a lot to go at that speed, but I don't seem to get tired." He thought a moment, and warned himself, "You'd bet-

ter not, either!"

He turned partly to look at the ringwall towering behind him. It loomed grimly, scored with deep shadows of cracks into which the rays of Earth, seventy times brighter than moonlight it received from Luna, could not penetrate.

Hansen turned away hastily. The mountainous mass made him uneasy; he remembered how easily a landslip had started on the inner slope.

"I'd better get moving!"

He struck out at a brisk, bounding pace, a trot on Luna without the effort of a normal trot. The ground was fairly level, and he congratulated himself upon making good time. Once or twice, he staggered a little, having overbalanced; but he soon got into the rhythm of the pace and the load on his back ceased to bother him. He bore slightly to the right, toward the jutting point of the ringwall.

The footing was like powdery gray sand. Alternating extremes of temperature during the two-week Lunar day or night had cracked the rock surface until successive expansions and contractions had affected the crystalline structure of the top layers. When these had flaked off, the powder had formed an insulating layer, but the result as far as Hansen was concerned was

that he trotted on a sandy footing. When he looked back, he could see the particles kicked up by his last few steps still above the surface. They fell rather neatly, there being no air to whirl them about.

Gradually, he realized that the unobstructive noises of his space-suit had risen a notch in tone. The clever little machines were laboring to dispel the effects of his faster breathing. He dropped down to an easy walk, which was still a goodly pace in the light gravity.

"Guess I'm sweating more, too," he told himself. "Now that I think of it, my mouth's a little dry."

He twisted his neck until he could get his lips on the thin rubber hose sticking up to the left of his chin. He closed his teeth on the clamp, and sucked up a few swallows of water from his tank. It was not particularly tasty, but at least it was cool. It would have been a lot colder if carried uninsulated, he reflected. The night temperature of Luna was something like minus one-fifty Centigrade, and it dropped like a shot as soon as the surface was shaded from the sun.

Refreshed, he started out again at a bounding run, exhilarating in his strength. He felt

as if he were just jogging along, but the ground rolled back under his feet swiftly. Had he been on such a bleak desert on Earth, he knew he would be slogging ankle-deep in sand—if he could move at all. His own weight was between a hundred and fifty and a hundred and sixty pounds. With what he was wearing and carrying, he was probably close to three hundred. It did not bother him here.

"It isn't bad at all," he thought with satisfaction. "Feels like jogging around the track in school, warming up for a race. One . . . two . . . three . . . four—still got pretty good form! Not even breathing hard!"

It occurred to him that it resembled a footrace in one other particular. He was deliberately putting off consideration of the finish while he still felt good.

"Oh, I'll meet them somewhere along the way," he said aloud, despite a momentary doubt that he was talking too much to himself. "Pretty soon, I'll cross the tractor trail. I'll follow it out maybe as far as Pico and wait for them to pick me up. The relief crew can't miss a landmark like that. It's damn' near nine thousand feet high, straight up out of the flat plain."

He slowed down somewhat to

scrutinize a ridge ahead. It turned out to be an easy grade and he skimmed over it easily. Otherwise, however, he was beginning to lose his recent feeling of satisfaction. Now that he moved out into the flat, empty plain, the essential grimness of Lunar landscape was more apparent than when disguised by the majesty of the view from atop of the ringwall. It was a study in gray and black, the powdery sand and the deep shadows groping toward him as he trotted into the earthshine. Above was the deep black of an airless sky, lit by the bright Earth and chilly stars.

Gray, black, green, white—and all of it cold and inhospitable.

"I feel like I'm not wanted here," Hansen thought. "Well, that makes it mutual, I guess!"

He looked back, and was amazed at the distance he had covered. Already, Plato looked more like a range of towering mountains than it did like a barrier of cliffs.

"This won't take so long," he reassured himself. "I must have covered five miles, running like this. Maybe almost ten."

He circled a tiny craterlet, or "bead," a few hundred yards across. In the precise center, it had a tiny peak, corresponding to the central mountain masses

found in nearly half the craters of Luna. For the first time, Hansen regretted the camera that had gone down with the tractor.

"Too busy driving to take any pix on the way," he growled, "and now that I come across a perfect miniature, I have no camera. A fine spare photographer for an expedition this size!"

He diverted himself for a few minutes by considering what a fool he was to come to Luna in the first place. He had not really wanted to, and he was sure there were plenty of others who would have been better qualified and better pleased at the opportunity. Still, it was strange sometimes how a man would do things he did not want to because someone else was doing them.

He glanced up at Earth, and kept moving southward with the shining globe on his left front.

Mike and Joey sat before their radio, on folding chairs and empty crate respectively, maintaining whenever not directly addressed an almost sullen silence. Their tiny cubicle was becoming entirely too crowded to suit them.

Dr. Burney paced up and down before the wall map of the *Mare Imbrium*. Opposite him, the lower section of the radiomen's double bunk—canvas and alum-

inum like their single chair—had collected an overload of three. Dr. Sherman, the chief astronomer, sat between Bucky O'Neil and Emil Wohl. Besides heading the geologists, Wohl was Burney's second in command; and O'Neil was present in case it was decided to send out a rocket to photograph the Plato region.

"Ya'd think they could use their own rooms," Joey whispered into Mike's ear. "All but Bucky got singles. How we gonna catch an incoming call with all this racket?"

The "racket" at the moment consisted mostly of sighs, finger-drumming, and a tortured semi-whistle from where Sherman sat staring at the map with his chin cupped in one hand.

"There's little doubt of the general location," repeated Burney, once more reaching a familiar impasse. "But I hate to hold up the other work to send out a crew when we cannot with any certainty agree that something has gone wrong."

"Let's see," said Wohl, "there was some difficulty, was there not, the last time they communicated?"

When no one answered, Mike finally repeated his previous testimony.

"Van Ness said they drove up a sort of mountain to get us. Complained a little about recep-

tion, He might've been getting to the limit."

"Then," said Wohl, "there is really no reason for alarm, is there? They could just as well have decided that continuing the mission was more important than running around looking for a good radio position, couldn't they?"

Mike considered that glumly.

"It's funny they didn't back up far enough to make *one* call to let me know they were going out of reach," he grumbled. "The speed they make in that rig, it wouldn'ta taken them long."

"That would have been the proper action," admitted Burney, "but we must not demand perfect adherence to the rules when a group is in the field and may have perfectly good reasons for disregarding them. No, I think we had best—Who's that coming?"

Bucky O'Neil bounded up from the end of the bunk and stuck his head out the door. When he looked around, his freckled face was unhappy.

"Johnny Pierce from the map section," he announced. "He's got Louise with him. I guess you don't need me any more."

He edged out the door as two others of the Base staff came in. The one who acted as if he had business there was a lean, bespectacled man who managed to

achieve a vaguely scholarly air despite rough clothing.

Trailing him was a girl who looked as if the heating economy that necessitated the standard costume of the Base also had the effect of cheating the male personnel of a brightening influence. The shapeless clothing, however, did not lessen the attractiveness of her lightly tanned features or lively black eyes. She wore her dark hair tucked into a knit cap that on Earth probably would have been donned only as a joke.

"We've looked at the photo maps," Pierce reported in a dry, husky voice. "They might very well be out of range. Lots of curvature in that distance, even with the depression caused by a mass of lava like that *Mare Imbrium*."

Burney accepted this with an expression of relief.

"I heard them talking about the Plato crew," the girl put in. "What's going on?"

Her voice was warm and, like a singer's, stronger than her petite outline would have suggested.

"Oh . . . just checking the radio reception," said Burney. "You can get the details from Mike, I suppose, if you have time off from the observatory. The rest of us are through here."

Mike scowled, and the girl

looked puzzled; but Burney, Wohl, and Sherman crowded through the door as if intent upon some new project. Sherman muttered something about the problem of erecting a transparent dome for direct observations, and the voices receded down the corridor. Pierce slipped out after them.

"Did I say something?" inquired Louise. "I only thought there might be news."

"I guess they're just busy, Louise," Mike said. He turned to the radio, unplugged the speaker, and donned a set of earphones. "You know how it is. Why don't you catch Bucky? *He's* got nothing to do for a while."

Louise had started to show her even white teeth in a smile which now faded. Joey picked up his empty crate and busily moved it around to the other side of the radio set-up.

"Sorry," said the girl, her dark eyes beginning to smolder. "I'll ask somebody else."

They listened to her footsteps as they faded away in the corridor. Mike looked at Joey and shrugged.

"What was I gonna tell her?" he asked. "That her husband either forget to call in—or got himself quick-frozen when something in his tractor popped?"

Joey shook his head sympathetically. "Tough on her."

"Dunno why she had to come to Luna in the first place," Mike complained. "I can see a nurse like Jean doin' it, and a type-writer pusher like old Edna oughta be classed expendable. But a babe like Louise!"

"It's her science," said Joey. "She wants to see the stars better."

"We got enough astronomers now. She's a smart girl, all right—can't take that away from her. But if she was *my* woman, she wouldn'ta come up here!"

"If she was mine," countered Joey, "I wouldn'ta taken a second-rate job just to follow her up here either! But you're dreaming about the past, Boss."

"Uh-unh," grunted Mike, plugging in the speaker again. "I just believe in equal rights for men. How'd you like to be married to a dame like that and have to trail her to a place where there's three women to forty-eight men?"

"Ask me how I'd like to be married to a dame like that period!" Joey invited him.

Mike adjusted the shade on the light so as to shadow half the room. He straightened the blanket where the three visitors had sat, appropriated the one from the upper bunk to cover himself, and lay down.

"Your watch," he announced coldly. "Wake me up if anything

comes in!"

The rope lacing of the canvas creaked as he settled himself; then Joey was left with only the quiet hiss of the radio. He leaned back in the folding chair and relaxed.

Hansen paused and turned to survey the ground he had covered in the past half hour. The hiss of his air-circulator and the whine of the tiny motors within his suit were a comfort in the face of his bleak surroundings.

He had found himself trotting along at such an easy pace that he had kept going past Mt. Pico. Now he wondered if he ought to stop.

"Might as well go on," he muttered. "Now that I've picked up the tractor trail from Archimedes, I can hardly be missed by the relief crew."

He eyed the twin tracks in the gray sand. Flanked by his own wide-spaced footprints, they stretched away into the dim distance. As a sign that man had passed, they did little but accentuate the coldness of the scene.

"Maybe I'll stop at the big triple peak," Hansen planned. "That's about thirty-five or forty miles . . . they ought to be along by then if they started right away."

Careful not to admit to himself that relief might be slow

in starting from Archimedes, he took a last look at Pico. Rearing starkly upward, it projected a lonely, menacing grandeur, like a lurking iceberg or an ancient monument half-buried in the creeping sands of a desert. In the light of the nearly full Earth, it was a pattern of gray angles and inky black patches—not a hospitable sight.

"Come on, come on!" Hansen reproved himself. "Let's get moving! You want to turn into a monument too?"

He had stopped just before reaching Pico to replenish his suit tank from the big cylinder, and still felt good at having managed the valves without the mishap he had feared. He did not feel like a man who had traveled seventy miles.

"Why, on Earth," he thought, "that would be a good three-day march! I feel it a little, but not to the point of being tired."

He looked up at Earth as he started out again. The cloudy eastern coast of North America had moved around out of sight in the narrow dark portion. Hansen guessed that he had been on the move for at least four or five hours.

"I'd like to see their faces when they meet me way out here," he chuckled.

It occurred to him that he might be more tired than he

thought, and as he went on he tried to save himself by holding his pace to a brisk walk. He found that if he got up on his toes a bit, he could still bound along that way.

The gray sand flowed under his feet, relieved occasionally by a stretch of yellowish ground. Hansen kept his eyes on his path and avoided the empty waste. When he did glance into the distance, he felt a twinge of loneliness. It was like the wide plainsland of the western United States, but grimly bare of anything so living as a wheat field.

He tried to remember as he moved along where it was that they had driven the tractor up a mountain ridge. He decided that he would rather avoid the climb, and kept an eye open for the chain of vein mountain beyond Pico.

"It ought to be faster to go around the end of them," he thought. "I can always pick up the tracks again."

When he finally sighted the rise ahead, he bore to his right. He remembered from the maps he had studied that the mountains curved somewhat toward another isolated peak, and he watched for that. As far as he knew, it had no name, but although only half the height of Pico, it was an unmistakable

landmark.

The mountains on his left gradually dwindled into ragged hills and sank beneath the layer of lava. Hansen turned toward the last outcroppings as the triple mountain he sought came into sight. He climbed onto a broad rock and started to sit down.

The end of the big cylinder slung across his back clanged on the back of his helmet. Hansen lost his balance and tumbled over the side of the rock. Under his groping hands, the heat-tortured surface of it flaked away, and he bounced once on the ground before sprawling full length.

"Goddamn!" he grunted. "When'll I learn to watch my balance with this load?"

He picked himself up and unslung the tank. Then, allowing for the normal bulk of his back pack of tank and batteries, he backed against the outcropping until he was resting at a comfortable angle.

"Maybe I ought to relax a few minutes," he told himself. "Give the air-circulator time to filter out some of the sweat. Then, too, I don't want to get tired and miss them when they come along."

He idly scanned the arc between the peak toward which he was heading and Mt. Pico, still

easily visible off to his right. The northern part of the *Mare Imbrium* drew his gaze coaxingly into the distance until he felt an insane desire to thrust his head forward. It almost seemed that if he could get beyond double glass of his insulated faceplate, if he could escape from the restraint of his helmet, he might perceive his bleak surroundings with a better, more real sense of proportion.

There was nothing out there, of course, he forced himself to realize. Except for shadows of craterlets that looked like low mountains, there was nothing to see for fifty miles, and nothing even then more noteworthy than a couple of minor craters.

"Then what the hell are you looking for?" Hansen snapped. "You want it to get on your nerves? And quit talking to yourself!"

He suppressed, however, the sudden urge to spring up and break into a run. Instead, he hitched around to stare along the ridge at whose end he sat.

He was far enough south to be able to see the side lit by earthlight. The ridge climbed higher the further it went, like the back of some sea monster rising from placid waters. Several miles away, a spur seemed to project out to the south; and Hansen thought he could remember a

mile-wide crater on the maps.

He was a bit more comfortable inside his suit by now. He shifted his position to expedite the drying of the coveralls he wore under the spacesuit. Then he raised his arms and tried to clasp his hands behind his neck, but found that his garb was not that flexible.

"Shouldn't kick, I guess," he thought. "Without plenty of springs in the joints, I wouldn't be able to bend anything, considering the pressure difference."

He spent a minute admiring the construction of the suit that alone stood between him and instant extinction. That led him to think of the marvelous mechanism of the vacuum tractor that had carried him so comfortably—though he had not appreciated it at the time—across the Lunar plain. That, logically, recalled the men who had come with him and now were buried beneath one of Plato's many landslips.

"Talk about borrowed time!" he thought. "I wonder how long I'll stay lucky? Any little thing might do it—"

He had already taken three or four tumbles, or was it more? On any one of them, had he rolled the wrong way perhaps, he might have cracked that faceplate on a projecting rock. It was made as tough as possible, true,

but if he even cracked the outer pane, the insulating sheet of air would spurt out to leave him with a slow leak. The inner plate would lose heat and cloud up from his breath, so that he would end up without even knowing where he was dying.

Or if he had slid over a surface jagged enough to tear through his yellow chafing suit, and then to rip the tough material of the inner suit—

A puncture here would be a real blowout!

He reminded himself to be careful about stepping into shadows, especially if they were more or less straight-edged. He did not remember encountering on the way out any of the canyon-like rills that ran like long cracks straight through all other surface features of Luna—except occasional small craters slammed into the rock after the rill had been formed—but there was always the chance that he might step into some other kind of a hole.

Fortunately, the earthlight shone into his face, so that he should be able to tell a shadow resulting from some elevation ahead of him.

"I'm getting the jitters squatting here," Hansen thought. "It won't do any harm to move on a little way. At least out past that mountain, where I'll have a

good view towards Archimedes."

He arose and slung the big cylinder over his back again, jiggling on the toes of his boots to jockey it into place. With one last look over his shoulder at the trail of his footprints splotched in the ashy sand, he started off.

He was surprised to discover that the rest had stiffened him slightly, but that soon worked out. As soon as he was warmed up, he moved out in a brisk walk which on Luna sent him bounding along with fifteen-foot strides. Swinging his arms to keep his balance, he concentrated upon the footing ahead of him. Once more he was alone with the hissing and humming of his suit and the sound of his own breathing, undisturbed by either memory or anticipation.

Mike Ramirez stirred on his bunk with the change of the quiet hissing of the radio. Something more than the occasional crackle or creak of Joey's chair or footfall in the corridor brought him up with eyes still half-closed. To his sleep-drugged mind, it seemed that nothing had existed until a second ago, when a faint, dreamlike voice had started to speak.

He started to push back his blanket—Joey's blanket—and said, "Joey! You got a call!"

“. . . to Archimedes Base. Hello Base! Over.”

“I hear him, Goddammit!” snarled Joey. “Go back to sleep!”

He pushed his switch and the rushing noise that had partly muffled the weak voice gave way before the surge of his own transmitter.

“Archimedes Base to Tractor One!” Joey answered, and Mike leaned back on one elbow and sighed.

He did not listen while Joey took the message, but swung his feet to the floor and sat up. Wiggling his toes uncomfortably, he wished he had taken off his shoes; but he had expected to lie down only half an hour or so. Until the call came in, he had been sound asleep.

Joey acknowledged the message and turned to Mike after dropping his pencil.

“The *Serenitatis* bunch,” he said. “They left two of them at Linné to take photos and poke around while the other pair brought the tractor back through between the Apeninness and Caucasus to call in.”

“Everything okay?”

“Yeah, they’re on the way back already, but they say Linné didn’t look as if it was ever a volcano after all.”

“Very true if interesting,” said Mike. “Okay, take it to Burney. I’ll bend an ear a while.”

He tossed the blanket back onto the upper bunk and walked over to the chair. He stretched, and sat down as Joey’s footsteps departed down the corridor.

He sat there, staring moodily at the softly lighted dials of the radio, wishing he had a cigarette. That was one habit he had had to cut off short when joining the expedition.

“I think I’m getting over it some,” he congratulated himself. He looked up at the sound in the corridor, thinking that Joey had made good time to Burney’s compartment and back. He raised an eyebrow as Louise entered.

“I just saw Joey go by,” she announced hastily. “Did some news come in?”

“Tractor One reported—just routine. What are you doing, picketing this dive?”

“I—I just happened to be passing the Junction, and I saw the paper in Joey’s hand.”

“Uh-huh,” grunted Mike.

What the members of the expedition had come to call the “Junction” was an intermediate dome equipped with the main airlock. The other buildings connected with it through safety doors so as to localize any danger or air loss in the event of a rupture in one of the domes. It was, in effect, the front hall of the whole Base.

And if you stand there long enough, thought Mike, everyone you know on Luna will pass by, and you'll find out everything that's going on.

"Where is number Two now?" demanded Louise quietly.

Scared, thought Mike, noting the over-controlled tenseness of her voice.

"I don't know for sure," he answered, not looking at her. "It's time they were inside Plato, and we can't expect to hear them from in there."

Louise walked jerkily to the bunk and sat on the foot of the lower section. She crossed her legs. Seeing the nervous manner in which she twitched her foot, Mike turned to his radio.

After a moment, she spoke again, and his shoulders quivered at the agonized harshness of her tone.

"Don't string me along, Mike! I want to know! You were worried about them hours ago, weren't you?"

Mike licked his lips.

"That don't mean anything," he muttered.

"The others backtracked to report, didn't they? To call in, I mean. Something happened to number Two, didn't it?"

"Now, take it easy, Louise!" Mike squirmed in his chair, then forced himself to sit still. It was not the sort of furniture

that would stand much squirming. "Burney kinda considered that as a possibility, but in the end they decided things were probably okay."

"Then why did they have Bucky in here?" she demanded.

"Just in case they thought it worth the trouble of scouting the Plato region. Nothing special."

Louise bounced up from the bunk. She stood beside it, stiff, with her little fists clenched tightly at her sides.

"They wouldn't let this long a time go by without calling in and you know it!" she declared. "Even if they did, there ought to be a tractor on the way to check."

"You might have a point there," admitted Mike.

"It could always be called back."

"It's probably been thought of," said Mike. "Look, Louise, why don't you calm down and let the worryin' get done by the people supposed to do it?"

She did not look at him. The darkness of her eyes surprised him, and he realized how she had paled beneath her tan.

"I can't help it," she said. "It's my fault, in a way. He only came along because I got so excited about the expedition I couldn't stay down on Earth. He didn't want to come, and now he's out



there—"

Mike rose and shoved his chair aside with his foot. He thought the girl was going to faint. Watching her narrowly, he reached out to put his hand on her arm.

He sighed with relief as he heard Joey whistling outside. Louise straightened and moved away from his hand as the younger operator entered.

"Why don't you go see Burney?" suggested Mike. "He'll explain how he figures the odds; or if you want to argue, it's more sense to do it with him than me. I got nothing to do with it."

The girl pulled herself together with a visible effort.

"I know, Mike. Thanks for listening, anyway."

"Joey, go along with her to Burney's quarters!"

"That's all right," said Louise. "I can find my way further than that."

They watched her leave, and Joey turned to his chief with a cynical glance.

"You looked pretty chummy there, when I come in!" he kidded Mike. "Don't you even wait till the bodies get cold?"

"Ah, shut up!" grunted Mike, jerking his thumb at the radio as he walked over to the bunk.

He added a profane order for a rather startling procedure.

"Can't," grinned Joey good-humoredly. "I ain't a contortionist."

Once more, he took the chair before the set and the pair of them sat in glum silence. The ventilation system came to life in one of its efforts to homogenize the Base atmosphere, and its sigh partly drowned out the hiss of the radio.

"You know something, Joey?" grunted Mike.

"What?"

"I got a feelin' we're not gonna see those guys again."

"Hope you're wrong," said Joey. "It's awful tough digging around here, after the first few inches."

Hansen trotted along steadily with the four thousand foot mountain rising in a sheer sweep out of the lava "sea" over to his right. There were three distinct peaks, he knew, but they ran in a line away from him so that the whole thing appeared one towering mass to him. Most of it, from his position, was black with the deepness of Lunar shadows, although he was gradually reaching a location where he could see the splashes of earthlight on the tortured rocks.

"Pretty soon I'll be out in the real flat, with nothing but a scattering of little craters to steer by," he reflected. "If I don't want

to stop, how had I better head?"

Just in case the problem should arise, he began to estimate the direction he should take and the sort of ground he would find.

The first thing would be to bear slightly left until he picked up the trail of the tractor once more. Then he could expect a region of fairly frequent craterlets, leading up to Kirch, a modest but respectable seven miles in diameter. If he passed to the right of Kirch, he would be kept from wandering aimlessly out into the *Mare Imbrium* by a range of vein mountains. He might go farther astray by passing Kirch to the left, but there the going would probably be easier.

"Then what?" he murmured, trying to recall the map and the journey in the tractor.

There was another open area, he seemed to remember, and then the forty-mile string of peaks called the Kirch Mountains, bordered on the right by an even longer ridge of vein mountains which might once have been part of the range.

And then, another thirty miles or so would bring him to the ringwall of Archimedes!

Hansen shook his head.

"That would be going a little too far," he muttered.

His voice sounded husky to his

own ears, and he paused to suck up a few swallows of water through the hose. He must have been half-hypnotized by the steady streaming of the gray surface under his feet, for he suddenly realized that he had gone considerably beyond the triple peak.

Without his steady forward speed, he found it difficult for a moment to stand erect. He braced against the movement of the big tank on his back, and turned around to look back.

He stared at the dark, earthlit ground over which he had been trotting. With the looming mountain in the foreground, and the upthrust ringwalls of smaller craterlets here and there above the level, aseptic frigidity of the plain, it was a scene of complete desolation. It was more naked of life or any kind of softness than any desert on Earth; yet to Hansen, it did not really seem like a desert. There was some further overtone plucking at the fringe of his consciousness.

Then it came to him.

"It's like an *ocean*!" he exclaimed. "There's something about it that's like . . . like a cold, gray, winter sea smashing in on a rocky coast!"

There was the same monstrous, chilling power, the same

effect upon the beholder that here was a massive, half-sentient entity against whose callous strength and cruelty nothing human could stand. It was a *thing* to observe from a safe distance, to cower from lest it somehow become aware of the puny structure of bone, blood, and flesh spying upon it. Then there would be no escape, no withstanding the crushing force of its malice. But he was on no safe cliff. He was down *in* the sea.

He looked around. Gray everywhere, mottled with inky shadows. Gray ash underfoot, gray-and-black lumps thrusting up from the surface like colossal vertebrae, gray distance in all directions.

"Been going for hours," he thought, "and there's no sign, really, that I'll ever get anywhere! I might as well be in the middle of the far side of Pluto!"

The huge mountain towered behind him, like a hulking beast from some alien world stalking the only object in all its frozen world that dared to move. Hansen suddenly could not bear to have his back turned to it. He faced it and edged clumsily away. The helmet that reduced his field of vision was his prison. If that black-shadowed mass of rock chose to topple over, it would easily reach him, and

more. He would be ground under countless tons of weight, mangled and frozen in one instant—

Hansen whirled about and bolted.

On his first stride, he caught the toe of his right foot in the sand and sprawled forward with flailing arms. He plowed into the ground, throwing up spurts of sand like a speedboat tossing spray.

Somehow, he was up immediately, running in long, wobbling, forty-foot bounds. His eyes bulged and the breath rasped between his lips as he strove desperately to keep his balance.

It was like running in a dream, the nightmare come true. More than once, until he adapted to the pace, he found himself churning two or three steps at the zenith of his trajectory, too impatient to wait for the touch of boot on sand. There was sudden, dynamic power in his tiring muscles. All his joints felt loose.

His chest began to labor and he stumbled slightly. With a quick spasm, he blew his lungs and sucked in a deeper breath. After a few repetitions, he felt a trifle easier. In a minute he began to get his second wind. All this came like a half-perceived process of instinct, while he concentrated narrowly upon

speeding ahead.

He flew up a slight grade and took off in a soaring leap to the next crest of an undulating stretch of pale yellow ash. The next thing he knew, he was rushing upon a long shadow that barred his path.

A hasty glance each way warned him there was no use trying to skirt it, for the shadow or hole or whatever it was ran for hundreds of yards right and left. Hansen stamped hard at the near edge and kicked off for at least sixty feet. Something seemed to snap in his right knee, but he came down all right and kept running, well clear of the shadow.

How long he ran, dodging this way and that to avoid hills and shadows obstructing his path, he did not know. In the end, the tiny motors of his suit fell behind the rate at which he consumed oxygen and gave off carbon dioxide and copious moisture.

When he began to feel like an underwater swimmer reaching his limit with writhing chest, Hansen gave up. He stopped.

That felt worse. He moved on at a gentle walk, accomplishing it mostly by motion from the ankles down. Amid the stifling warmth and stickiness inside his spacesuit, it was borne in upon

him how badly he had lost his head.

He looked back, panting. Where was the mountain? Then, following the trail of isolated scars on the surface beyond where they faded into the gray distance, he saw a small knob of gray against the star-dotted black of the horizon.

"I guess . . . I've . . . really been traveling!" he panted. "Twenty minutes or half an hour—wonder how fast I went to put a mountain out of sight? Of course . . . I was well past when I started."

That reminded him of his bolt, and he closed his eyes in a paroxysm of shame.

The sweat beading his forehead began to trickle down his cheekbones or nose. Now and then, a drop rolled into his eye, despite efforts to shake his head inside the confines of the helmet. It stung, but he was too blown to get excited over that.

"Why did I have to go and do that?" he groaned inwardly.

He remembered how level-headed he had been in the first minutes of the catastrophe. Calmly, he had judged the odds of there being any survivors; calmly, he had climbed down for the prime requisite, the tank of oxygen; calmly, he had started off by a well-chosen route that led him accurately to landmarks

so plain that they could be spotted from Earth with a good pair of field glasses.

He had intended to go only as far as Pico, or perhaps the triple peak. Or had he?

Somewhere back there, he remembered, he had begun planning a further march. There could be no reason for that except—

Except that he was secretly aware that he could count upon no help to reach him in time!

"Why should they send anybody out yet?" he asked himself. "For all they know, we're still inside Plato, camping on the nice level lava floor. I *must* have been thinking that, underneath, when I was figuring which side to pass Kirch."

He had been skating on thin ice and should have expected a crack-up. For a moment, he considered the possibility that it would have been better had he broken down on the spot. But then he might have quit while still on the ringwall of the great crater.

"As it is," he said aloud, "I'll at least get the most possible mileage out of this suit. If I live long enough, I might even walk in on them at Base, for a surprise."

He grinned a bit as he considered that pleasant fantasy:

"Hi, Paul; where you been?"

"Oh, just out for a little walk on the moon."

"And where did you go on your little moon walk?"

"Took a turn around Plato. Pretty boring but 'tousjour gai, whatthell whatthell!'"

He managed a deeper breath as his equipment caught up somewhat to his physical needs. The half-grin on his lean features faded, and he stepped up his plodding pace.

"Like hell!" he snorted. "Why kid myself? I'm just about scared senseless! And I've got a right to be!"

Bucky O'Neil, as the pilot who was to take the scouting rocket, occupied the only extra chair in Dr. Burney's headquarters room. Burney sat across from him at the folding table and circled the proposed search area continuously with the butt of his pencil. Both men eyed the map reflectively. Burney looked as if he were trying to guess the precise location of his tractor crew. O'Neil, tracing his route with a blunt forefinger, was obviously attempting to estimate where he would have to punch his flare release in order to have his camera working by the time he whipped across Plato.

"Just to save us the wait,"

said Burney, leaning back in the silent, crowded room, "report by radio as soon as you loop back. Have you checked your set with Mike?"

The radio operator, standing to the rear of the little group, spoke up, "Joey's checking with the field now."

"Good!" approved Burney. "Does anyone have anything to add?"

He looked about. Sherman whistled quietly and tonelessly. Wohl shook his head. Johnny Pierce hovered, waiting to get his hands on his photomap again. Louise leaned against one wall near the door, worrying a pencil end between her white teeth.

"All right, then," said Burney, "you can go get into your suit, Bucky. Good luck!"

The gathering broke up. Burney signaled for Wohl and Dr. Sherman to stay behind, and forestalled Johnny's move to re-appropriate the map.

"We may want to consider further," he offered as an excuse, and Pierce left with Mike.

Outside, they watched Louise follow Bucky in the opposite direction.

"Wonder how it feels to have her man out there and maybe not coming back?" murmured Johnny.

His long face looked sad.

"What do you think their

chances are?" he persisted after a brief pause as they turned a corner in the corridor.

Mike shrugged.

"Tractor One is starting back already," he said simply.

Hurrying along the other end of the corridor, Bucky was unable to shake off the following footsteps without putting on an obvious burst of speed. It sounded like Louise, and he wanted to think about his flight plan.

Finally, as he passed through the safety door—a double mounting that could be used in an emergency as an airlock—he had to pause long enough to acknowledge her presence.

"Do you mind if I ask you something, Bucky?" Louise inquired.

"Of course not, but I have to—"

"I know; I won't take more than a minute. The thing I don't like is that they just want you to photograph Plato."

Bucky released the door which swung shut automatically. He looked puzzled.

"Don't you think it's worth doing?" he asked.

"Oh, yes! Yes, I do. But how about all the other places?"

The pilot fidgeted.

"I can't take shots of the whole *Mare Imbrium*, Louise."

"You might take a few of the section this side of Plato, though.

How do we know they ever reached the crater? If tracks show up on your pictures, we'll know how far they got."

"That's a good point," admitted Bucky, scratching his head. "But why didn't you bring it up in the meeting?"

Louise looked away. She shrugged slightly.

"Well, maybe Burney would have talked you out of it," Bucky conceded. "We all know you're worried."

"I know what everybody thinks," Louise replied. "I'm getting excited because one of the four happens to be my husband. I'm not thinking calmly about what's best for the Base as a whole, whether it's worth taking people off other jobs to play hide and seek out on the surface. I probably shouldn't have come to Luna in the first place."

Bucky looked around, but there was no one passing through the Junction. Louise stepped closer and put a trembling hand on his arm.

"All right, Bucky, it's true enough. I'm frightened. I wish I'd never thought of coming here and making Paul feel he had to trail along! Are you married, Bucky, or engaged?"

"Well, there's a little blonde waiting down there for me—I hope. She'd better wait."

"How would you like it if *she* were out there?"

"Ummm," murmured the pilot. "I see what you mean."

He saw more than that. He saw how close she was to losing her grip, how she was keeping back the tears with an effort, trying to use every ounce of self-discipline so as to keep from being ignored as hysterical. Getting a few little things done, like influencing him to take extra photos, was all she could do at the moment to look out for her man. He remembered hearing from Pierce that Burney had refused her offer to take out a tractor herself.

"Well . . ." he yielded, "I'll see if I have a chance. I figure to cover the approaches to the ring-wall anyway; maybe I can get a shot out around Pico, or thereabouts."

She did not thank him, but hid her face against his shoulder for a second. Bucky looked around again, touched her lightly on the head with one big, freckled hand, and disengaged himself gently.

When he glanced back over his shoulder, Louise was opening the safety door to go back.

"Heading for Mike and the radio, I bet," he thought. "Wonder when she slept last?"

He reminded himself that he had a job to do which involved delicate judgements at high

speed, and he had no business going into it with hindering worries on his mind. If that girl did not watch herself, she would wind up under the care of Jean and "M. D." McLeod.

"I'm liable to, myself," he muttered, "if I don't snap out of it now! I wonder who'll pick me up if I zig out there when I ought to zag?"

He stopped at a phone connection and called the field control dome to learn if they were ready for him.

Dazzling glints of light flashed here and there from that part of the Pacific Ocean still in bright sunlight as Hansen came in sight of Kirch. The coast of California had faded into the darkness and Asia was partly in view. He estimated that he had been moving for nearly eight hours.

His pace was still a rhythmic lope, but the feeling of having vigorous reserves of strength had worn off. Hansen knew that he must rest soon. In traversing the flat, crater-speckled plain since his panic, he had paused only once when he took a few minutes to recharge the oxygen tank of his suit.

"But I'm due for a good half hour off my feet," he decided.

His legs, he noticed, had lost some of their snap, so that his bounding trot was less exuber-

ant. On the other hand, this resulted in his getting slightly better control of his stride; he no longer broke his rhythm by bouncing too high. The thing that bothered him most was the growing ache across the small of his back.

He skirted the ringwall of the last of a series of small craters and saw the shadowed side of the seven-mile wall. He was approaching the left curve of it, for he had hours ago decided to abandon the tractor tracks when he had crossed them again.

"No use running up the right and getting into the Kirch Mountains," he had muttered. "I'd have to zig-zag through them and I doubt I'll feel like making any extra distance by then."

His guess now, from the angle of Earth in the starry sky, was that he was heading a shade left of his generally southerly route. He reminded himself that he must change after rounding Kirch.

"I'll keep going till I'm past," he promised himself. "Then I'll sit down and relax a while."

He could not see much point in making another few miles out into the empty wasteland beyond Kirch. The crater was a natural goal to mark a section of his journey. About halfway between Plato and Archimedes, it was

further than he had dreamed of going. Even now, after he had seen how fast he could travel in the light gravity, it struck him as almost unbelievable that he would have covered such a distance. It was nearly a hundred and fifty miles.

Yet here he was, not in bad shape at all. He glanced at the outer slope of the ringwall on his right, and mentally catalogued his various irritations. There was, of course, the general clamminess that resulted from spending hours in a spacesuit, plus the fact that his bladder was beginning to bother him and there was nothing he could do about it. The overheating due to his exertions had been partially adjusted when he had discovered during his last halt that he could regulate the heating unit by a small dial in his battery pack, which discovery left him slightly aggrieved at not having had the finer points of the care and handling of spacesuits more exhaustively explained to him.

"But then," he reflected, "I was probably expected to spend a lot of time in the darkroom as a spare photographer."

He could not say he was hungry, although he supposed that sooner or later he would discover feelings of weakness. His

suit seemed to be functioning as well as could be expected, except for something that had given way in the right knee on that one leap. He wondered if a spring were working loose.

"That could end up giving me a beautiful limp," he thought. "With fourteen pounds inside, and no air at all outside, it'd be tough to bend a joint without some mechanical help."

By now, he could see light-streaks along the ringwall, and knew that he was rounding it. The lighting gradually increased as he continued, until when he began to move out into the open plain some time later, the walls were mostly gray with earth-light. Kirch had a "new" appearance, as craters went. Its floor was not lava-filled, nor its ringwall seemingly as long exposed to thermal erosion, so that the probability was that it had been formed after the "sea" around it.

Hansen began to keep an eye out for a suitable place to sit down. Presently, he located a rock the size of an auto.

"Time for a drink, and then I'll pick out a good spot," he sighed.

The second he stopped to grope with his lips for the little hose, he knew he was really tired.

The water, cool from being only partly surrounded by heating coils to protect it from the

exterior cold, refreshed him but slightly. The running had left a thick taste in his mouth.

Hansen unslung the big cylinder he had carried on his back and set it down beside a comfortable indentation in the rock. He then unfastened his back pack of tank and batteries. The metal-covered connection protecting the hose and wires was long enough to permit the pack to be set at his side.

He lowered himself to the fine sand and leaned his back against the rock with a sigh of relief. He squirmed into a more comfortable position.

"Wish I hadn't drunk all that water," he growled.

He leaned the back of his neck against the neckpiece of his suit. It was not uncomfortable except that he found himself staring directly into the light of Earth.

"I'm getting used to it all right, if I think that's too bright," he thought. "Bet my pupils are big as a cat's now."

Ironically, his feet had not started to hurt until his weight was off them. It felt as if he were developing blisters. The coveralls he wore under the spacesuit, moreover, had begun to chafe in a few places—around the armpits as he swung his arms, behind his right knee, on the inside of his thighs.

He also was reminded of the

sweat that had trickled around or into his eyes, for the lids felt sore.

"I want a different view," he grunted, picking himself up. "Facing the other way, maybe I can rest my eyes."

Carrying his back pack, he started around the rock, then prudently went back for his big oxygen cylinder. He could think of no good reason for dragging this with him, but he somehow felt more comfortable with it beside him.

The other face of the rock was blackly shadowed, and he was forced to find a convenient spot by groping about. With a sigh, he settled down, squirmed again into an easy position, and found himself contemplating the ringwall of Kirch a few miles away. The regular sough of air through his suit and the quiet hum of the mechanisms that were keeping him alive were so familiar by now that he hardly noticed them. It was the cessation of movement, not any diminishment of the normal sounds, that lent an impression of quiet to the scene.

He looked at the ringwall, squinting against the sting in his eyes that caused them to water occasionally. The left extremity was dim in the distance, but to the right, he could clearly

see the slope of the wall as it curved to meet the plain. There was no feeling of a towering, insecurely balanced mass like that of the mountain.

"Although a crater at a distance does look like a mountain range," he thought. "Not so close as this; it goes up too steeply."

In a way, it was almost like looking at the skyscrapers of a big city, like looking at Manhattan from across the Hudson River. Except that there were no lights.

He closed his eyes for a moment and tried to visualize the sharp peak a little to his left atop the wall as it might look with a thousand lighted windows gleaming white and yellow.

It was hard to do. The stark fact was that there was only Lunar dimness, relieved by earthlight but tending to be uniform in intensity without the rays of the sun. If the silhouette of Kirch was like that of a city, the metropolis it resembled was a dead one.

A dead city in the midst of a cold, frozen sea of lava. A ghost city that had never lived, yet rose up from the gray sea over which no ship had sailed and whispered and whined ghostly warnings. "Stay with me, Man! I am dry and lonely. There are no people to warm me with light and sound . . . there is none to

see my massive strength and, by seeing, make it into reality . . . stay where you are, Man!"

"But it's dead," thought Hansen. "More than dead—sterile!"

"But you, Man, you too are dead. You are already turning cold. You will slowly congeal . . . become solid . . . a monument . . . a symbol of the tribute brought by folly and life to the sea of coldness and gray death—No, do not shake your head . . . it is too late . . . my shadows are about you . . . you have no light . . . all your prayers and wishes will not turn on a single light. The shadows reach you . . . touch you . . . the pain in your leg is the cold of space . . . you will sit there forever . . . drowned in the gray sea of frozen lava . . . imagining lights for me in the blackness . . . imagining life in me in the noon glare . . . but now there is no light unless you have the force to see it . . . but you are cold . . . cold . . . cold . . . cold . . .

The sky flared with flickering light. It turned black while the image of light still remained in Hansen's eyes. Then a new light, tinier and higher streaked overhead. Hansen awoke with the hairs tingling on his neck and leaped to his feet with a hoarse shout.

"A rocket!"

In the stillness of the radio room, the incoming call from Bucky's rocket made Mike jump in his chair before the set. Hastily, he turned down the volume he had kept in hope of picking up faint calls from Plato.

When he had answered and relayed the message by phone to the landing area, he turned to the others in the room.

Joey had been sleeping in the upper bunk. Louise had asked to stay and Mike had offered his bunk for her to sit on. She had not slept, as far as he knew; but he had turned to the radio and maintained a lengthy silence.

"Maybe I ought to talk to her," he thought, "but what is there to say? Four good guys; but they're awful late checking in."

But when he looked around, they were both watching him; and he had to tell them.

"Bucky's coming in," he said.

"Did he find anything?" demanded Louise.

"Don't know yet," Mike told her. "He said he took a snap of Plato coming and going and three more on the way back."

Louise moved toward the door.

"Thanks a lot, Mike," she said.

Joey slipped down from the bunk as she disappeared into the corridor.

"Never mind," advised Mike. "With Louise and Bucky in that

hole they call a darkroom, dodging the photographer's elbows every time he breaths in, they won't have any place for you but up on a shelf."

"I just thought I'd—"

"We'll get told. Now, stay with me, kid, an' make sure *I* don't go wanderin' off to have a look too!"

Hansen stood stiffly by the rock and painfully tried his neck muscles. He searched the sky, but nothing moved among the stars.

"Now, *did* I see something?" he asked himself slowly. "Or was I still dreaming?"

He grimaced, and raised a hand to the back of his head before he remembered that he was still in his spacesuit. His neck was stiff and sore from lying across the rigid neckpiece of his suit, and he was chilled to the bone.

"Must have been asleep quite a while," he thought. "Maybe I ought to turn up the heating again—or should I just warm up as I walk?"

He paused a moment to stare in open-mouthed amazement at the ringwall of Kirch, rearing up three thousand feet toward the stars.

"When am I going to do something right?" he asked. "Why couldn't I stay where I was, facing Earth, and go to sleep

dreaming I was home?"

He went on to wish that he had not gone to sleep at all. The aches that were irritations when he was warm from walking were now centers of agony.

He was sure he had blisters, and the chafed places under the suit jabbed little warnings of tenderness as he tried to move. Reaching for his battery pack, he nearly toppled over because his right leg was asleep. Even after he recovered and took a few steps to restore the circulation, the knee did not feel right.

"I wonder if I pulled a muscle?" he mused. "Or is it in the suit?"

He looked up at Earth. India was moving into the arc of shadow, but he could see Africa, the Mediterranean, and Europe.

When he realized he must have been out for three or perhaps four hours, he immediately checked his oxygen. It was none too soon. He refilled his suit tank and examined the pressure of the big cylinder. He guessed that he could do the trick once more.

"I wonder how long a man can live in a spacesuit?" he muttered. "Hansen, why aren't you dead?"

Groaning with stiffness, he adjusted his battery pack and tank and slung the cylinder atop the load. Although he seemed as wet as ever, he sucked up a drink of

water while he listened to the hiss of his air circulator.

"Wish I wasn't so thirsty," he said. "I'll have to watch it. Beginning to feel lack of food, too."

He started off, moving mincingly to favor his sore muscles, and immediately felt the weakness brought on by hunger. It was hard to believe that a nightmare could last so long, but he remembered that it was almost a full day since he had eaten a sandwich in the tractor.

Gradually, as he moved along, marching away from Kirch into the open wasteland, he began to warm up. The stiffness left his muscles, although the chafing remained annoying. His feet felt sticky in the thick socks, suggesting that he would have trouble. He thought they might be bleeding.

What the hell was the matter with that knee, he wondered.

He thought of stopping to examine it, but the likelihood of his falling over on his face if he bent to feel the joint deterred him. He kept on. In half an hour, it became clear that a spring had snapped.

Not only was the knee harder to bend than it should have been, but something began to dig through his coveralls behind the knee.

"That's not so good," he told

himself, but there was nothing he could think of to do.

He finally mustered the ambition to get up on his toes and bound along at a fairly brisk pace. The miles again floated under his feet, but he found that he could not maintain the trot the way he had earlier. Then, he had congratulated himself on his freshness, but he had come a long way since those few hours of immunity to fatigue.

The end of an hour found him moving at a moderate walk. One more, and he stopped noticing the pace particularly. There were few landmarks about him. He did not even strain ahead to catch a glimpse of the Kirch Mountains.

Finally, the nagging pain behind his knee became bad enough to make him stop.

"This is damn' silly!" he growled. "I can't go along until that point of metal saws through a vein or something! Must be something I can do about it."

He thought it over, but it seemed that there simply was nothing he *could* do. The broken bit of metal was beyond his reach; he could not even feel it through the thickness of the spacesuit and the protective yellow chafing suit. Even if he should remove the latter by some weird contortion, the knee joint, as an obvious trouble spot, was

reinforced by a bulge of metal. He would not be able to pinch or prod through that.

"Of course," he muttered, "I might take it off entirely. That would make things easy right away. A lot easier than just sitting down to wait for my air to run out."

He shook that out of mind with a jerk of his head, and struck out across the plain once more.

He had come to a stretch of gently rolling rises, and he tried to get most of his upward push from his left leg. Coming down the slopes, he hopped stiff-legged on his right. It was not too long before this became more tiring than it was worth.

"To hell with it!" he growled, and grimly drove onward with a more normal gait despite the sharp dig . . . dig . . . dig into his flesh at every stride.

Burney and Bucky again sat across the table in the former's room. Instead of the map they had consulted earlier, they gazed down at the new photographs. The room, as before, was crowded with others who had edged in watch silently. Even "M. D." McLeod, so nicknamed to distinguish him from all the doctors of philosophy and doctors of science among the expedition, lingered with his stethoscope dangling

after giving Bucky a routine, post-flight check.

Johnny Pierce stood lankily behind Burney's shoulder, holding a spare magnifying glass and squinting down at the photos. Sherman, Wohl, and Joey stood around the table with the photographers who had developed and enlarged the pictures. Louise watched from behind Bucky, resting her hands on his shoulders.

Burney nodded slowly, examining the picture of the interior of Plato through his lens.

"I very much fear," he said, tapping a forefinger on the half-lit heap of material at the foot of the ringwall, "that there is only one conclusion. That is a new slide, is it not?"

"It is," said Dr. Sherman, gesturing slightly with an older photograph of the region.

"And it is quite clear that they reached the crater," Burney continued. "These are excellent pictures, and the trail of the tractor treads shows very definitely."

"How about this one, Dr. Burney?" asked Bucky, pushing across another photo.

It showed the region around Mt. Pico, and had been enlarged until tracks of the tractor could be clearly seen. Burney frowned when he looked at it.

"To be perfectly frank," he murmured, "I do not know what

to make of it. Those marks accompanying the trail *could* be footprints, I suppose, as has been suggested. But why . . . or how?"

"A man running could make marks that far apart in this gravity," said Bucky. "I know Johnny estimates those little dots are twenty and thirty feet apart, but it's possible."

"It is also possible that they are nothing of the sort. You notice that they leave the trail after a time."

Louise spoke up.

"That at least rules out one interpretation," she said. "They certainly aren't footprints made by someone on the surface on the way to Plato. Anybody walking beside the tractor would have left a trail starting and ending at the tread tracks."

There was silence. Some of the men looked at her with pity, others stared very hard at the photographs on the table.

Burney prodded another picture with his finger.

"Bucky took this where the tracks passed Kirch," he reminded them. "There are none of these so-called footprints there. I regret to point out the obvious conclusion—

"But can't you do something to make sure?" Louise burst out. "You aren't just going to leave them out there! You couldn't!"

"Of course not," said Burney, biting his lip uncomfortably. "As soon as the *Serenitatis* crew get a few hours, rest, I shall send them out to recover . . . ah . . . to check. But the time element has already become such that—Well, my dear, there is simply no use in rushing things. Either there is no need, or it is already too late."

There was not much doubt as to which possibility seemed the more likely. The meeting began to break up in unhappy silence.

Hansen trudged along with his chin on the neckpiece of the suit. Every so often, when he lurched in the shifting sand, his forehead bumped against the faceplate of his helmet.

"And that's not so easy to do," he thought foolishly. "Takes a supple neck to accomplish it."

He concentrated for perhaps a hundred paces, and slowly arrived at the corollary.

"Takes a pretty soft and supple head to get out here in the first place. Shoulda stood at home in bed. Should've stayed on Plato and tried to build some kind of a marker. Base'll send out somebody . . . wonder if that was a rocket I saw? Maybe I'd be dead . . . but I'm gonna be dead anyway. Why don't I just sit down and wait? At least, it won't hurt any more. And, I'll be easy."

No arguments to the contrary occurred to him, but some deep impulse refused to let him quit.

He had to pause again; his stops for rest were becoming frequent. He did not sit down.

Never get up again, he realized.

He planted his feet wide apart and stood there, panting and letting his hands hang limply at his sides. His face felt stiff as he bared his teeth against the throb of the cut behind his knee. By now, he was so used to the wetness of the leg that he could not be sure the blood trickled down any faster.

He saw that he was standing on ground lighter than usual, and tinted pale yellow. Remembering passing several such areas, he slowly realized that they must be rays from Aristillus, traces of vaporized minerals blown out across the surrounding territory when the crater had been formed. It meant, for what it might be worth, that he was getting near Archimedes. Some of the rays of Aristillus reached the larger crater.

He gritted his teeth and took the first step forward. A glance to his right assured him that the jagged peaks of the Kirch Mountains were where they should be. Once, as he walked along half awake, he had discovered himself turning away on

a course that would have sent him circling back into the *Mare Imbrium*.

"Sea of Showers," he thought. "I wish there were some. I wish I even had a glass of water to pour over my head. Just a glass of water to rinse out these eyes. I wouldn't even care about a shave."

He began to notice his footsteps, besides the hiss of the air-circulator and the laboring of the suit's motors. Through his boots, they had a distant, swishing sound that insidiously lowered his puffed eyelids little by little. His head bumped against the faceplate again.

Hansen jerked upright with a start. Clumsily, he turned to look back. His tracks were long, dragging gashes in the sandy surface.

"Hell! Going to sleep again," he croaked.

With the effort of speaking aloud—it was getting difficult to think clearly otherwise—the corner of his lower lip cracked. He opened his dry mouth, making a face at the morning-after taste, and gently touched the tip of his tongue to the spot. It stung.

No harm in taking a little water, he decided, though he knew it would offer only a fleeting relief. But he needed that.

He turned his head to the left and got the thin rubber tube between his teeth. The cracked lip stung as he sucked on the tube.

The water was cool. His tired eyes closed with the sheer pleasure of the sensation.

On the third swallow, it stopped flowing.

"Oh, *no!*" Hansen groaned..

He drew harder on the hose and eked out another mouthful. That was all. The tank was empty. It was supposed to be partly replenished by moisture removed from the air in the suit, but he had apparently reached the limit. The suit was not designed to be worn for twenty hours. It was a wonder that nothing had yet broken down.

He held the last mouthful without swallowing, letting it roll slowly about his mouth.

"Come on!" he thought. "That's all there is. What are you waiting for?"

He knew it was silly to feel angry at this latest pinprick. His growing rage was a sign of exhaustion, and some part of his mind recognized that fact; but he deliberately let his temper go . . . and drew extra strength from it.

The swallow of water gradually slipped down as he surged forward. With the stiff right knee, he staggered once and came

so near falling flat that he skidded on all fours under him again.

"Godammit!" he raged. "What are they doing at Base? Waiting for a weather report? Anybody with an ounce of brain would know by now things went sour!"

He lurched down a gentle slope and charged the next rise.

"I'll show the bastards!" he grunted. "I don't need them, if they're too chicken to come out for me. I'll get there . . . I don't know how I'll get up the god-damned wall . . . but I'll get to it! I'll get there!"

Mike sat before his radio and looked at the other three in the room.

Pierce looked thoughtful, Joey was frankly excited, and Louise Hansen paced nervously back and forth.

"The crew from Tractor One say they saw no tracks of any kind," he said, "but that doesn't prove a thing. They came nowhere near the line between Plato and Archimedes."

"Then you think we're justified in not waiting for the same crew?" asked Louise.

"Sure," said Mike. "I don't like to sound like I'm egging you on to something I wouldn't do myself, but—"

"Of course, Mike, of course," interrupted Johnny. "One of you has to stay on the radio, or we

couldn't call back. We could get Bucky to take Joey's place, I guess but why wake him up?"

"He did his share," Joey put in quickly.

Mike looked from face to face.

"Well, Joey can say I gave him permission," he said. "I don't know what you will say, but it'd be better if you got going and figured that out on the way back."

The shadowed ringwall loomed up before the yellow speck on the plain. Just enough earthlight reached this face to show where the seven mile wide outer slope was terraced by gentle inclines. Several of these led upward toward the pass used by the scouting expedition. Against the black sky, Hansen could not see the radio tower that had been erected, but he was no longer interested in that. He had jettisoned his radio batteries back on the plain to be rid of their weight as he tackled the long slope leading to Archimedes.

"There you are . . . there you are!" he mumbled. "Eureka, eureka! Damn' near three hundred miles . . . maybe more the way I came. That's navigating, ain't it?"

The ringwall stood passively before him.

"Well, ain't it?" snarled Hansen thickly. "All right, here we

go!"

He lurched forward. Despite having abandoned every bit of excess gear—the empty oxygen cylinder lay back beside the last craterlet he had passed—he could walk no faster than if he had been on Earth. It probably meant that on Earth he would have long since collapsed, but he was beyond thinking of that.

He found he could not climb the first seven-foot ledge he came to, and had to walk along it to a lower spot.

"No time, no time," he muttered against the delay. "You're on your last tankful now . . . in fact, well into it. You get up there . . . now . . . or not ever."

He found a long lateral slope and followed it up several hundred yards. He was cold and sluggish, and it seemed that his heating batteries were close to exhausted.

The ache across his back seemed normal. Even the dull misery of his legs, chafed, cut, rubbed raw, and the soggianness of his bleeding feet had come to be merely part of his general limpness.

He found himself finishing the last few yards of the slope on hands and kness.

"Funny," he croaked. "Don't remember fallin'."

He reached out for an outcropping of rock to pull himself up.

The broken spring twisted in the mangled spot on the back of his thigh as he tried to rise. Getting both hands on the rock, he inched upward little by little.

It took him all of five minutes before he was on his feet again. At first, he thought he was dreaming again. The rock seemed to move under him.

Then he saw, peering blearily upward, that it was part of an old landslide. One slip on his part now might set it off again, and send him crashing down to the bottom of the ringwall again. Hansen groaned and stepped away as carefully as he could.

He was faced by a forty-five degree slope. If he could negotiate it for about thirty feet, he would reach another ramp. He looked down, and wondered if it would be easier to slide down to a lower terrace which would eventually lead higher than his present position.

"No time," he said dazedly.

He began to scrabble his way up the incline, not one too difficult to climb on Luna. The sun-powdered rock flaked off beneath his hands, elbows, knees, and feet. He slid back about as fast as he climbed.

With a sob, he lunged for a projection the size of a man's head and got one mitten on it. The rock cracked off and he slid to the foot of the incline.

"Oh, God! It's too much!"

His face twisted up and he expected to feel tears running down his face. Apparently, however, he was too dried out for that.

He sat there dully, staring at the lower ramp and trying to tell himself he could always try that.

He knew better.

"This is the end of the line," he told himself. "Last stop . . . you're done."

Even his conscience did not twitch at his surrender. He only wished he could see Earth and look at North America again where it was centered on the globe once more.

It was too much effort to turn around.

"Wonder if they'll find me," he mumbled. "Dunno if I want to get buried or not. . ."

Something moved to his left. A light.

"I'm seeing things," he muttered. "Not long now."

But the light swung up and down, it lit the slope below him, and it kept moving.

Nothing looked like that but a tractor.

But it would pass a hundred yards below him. The driver would have his eyes glued to the ground ahead, watching for holes or cracks.

Hansen started to laugh and

managed to catch himself.

"The chance after the last chance!" he thought he said aloud, although his lips barely moved.

The effort of pulling himself to his knees brought out sweat he did not know he had left.

He waited for the tractor to reach a point below him. Waited . . . lifting the head-sized rock in both hands.

The tiny weight tired him, and he lowered the stone to his knees. The tractor lumbered along, heading down the slope into the plain.

Hansen swayed where he knelt, but concentrated everything upon estimating the distance.

With a grunt, he raised the rock and thrust it away from his chest, outward over the slope on which he sprawled with the motion.

He raised himself on his elbows and looked to see what happened. The tractor had slid to an abrupt halt.

Dimly, he could see the shattered pieces of his missile bouncing in and out of patches of earthlight below the vehicle. The driver could not have missed it crossing his path.

"Gotta get up . . . up!" Hansen thought desperately.

He did not realize that his air was turning foul, but the simple feat of getting his feet under

him left his heart pounding wildly.

He planted his feet somehow until the light swept up the slope as those in the tractor searched for a possible slide.

Brightness filled his helmet. He was dazzled, and felt himself falling.

"Paul, try to help!"

"Paul, can't you get some grip when I shove you in? I can't keep you from sliding out the airlock. Paul!"

The voice was young and desperate.

When the other man backed away, parting the contact of their helmets, Hansen saw the features of Joey, the radio operator, through the other faceplate.

He stirred feebly.

"That's it, Paul," said the far-away voice as Joey bent to lift him again. "Just a little bit of help till I get you inside the airlock."

Something clanged, leaving him in blackness.

The next thing he knew, he was gulping in sobbing breaths of fresh, oxygen-rich air. His head ached, but he felt better.

Someone was mopping his sweaty face with a wet handkerchief. The handkerchief dripped, and the drops were salty.

He could not see Louise, because she held his head cradled

against her breast, but Joey was looking at him wide-eyed over the back of another seat.

"How long ago did you start?" asked someone else, and Hansen saw that Johnny Pierce was driving.

"Right after we got to Plato," said Hansen. "Everything but me and a tank of oxygen went down in a slide."

"Musta been nearly twenty-four hours ago!" exclaimed Joey.

"Gol-darn!" said Pierce primly. "Three hundred miles, give or take a few!"

"You ain't human, Paul!" said Joey.

"Do you want your suit off now?" asked Louise. "We could only get your helmet loose in this space."

Without seeing her face, he could tell that she had been crying.

"Just leave it on," said Hansen. "Wait till we're in, and I can go right from the suit to a bath."

"We're coming over the crest," announced Johnny. "Louise, you better hold him in case I hit a few bumps."

Hansen relaxed with a sigh as he felt her hands tighten against him.

"Hold tight, Honey!" he whispered as he closed his eyes against the lights in the tractor. "I . . . I'm a little tired."

BE FRUITFUL AND MULTIPLY

BY MICHAEL SHAARA

ILLUSTRATED BY EMSH

She wanted to be a mother—to have a child of her own, with everything that went with the act of birth. But she was in the wrong world for that. There was the freeze. . . .

His baby was due at four that afternoon. His baby, was all he kept thinking, his son. He lived through the long morning of that day tense-nerved and grinning. He left the office early and was home before noon.

Although he had been gone only a few hours, when he arrived home he felt a superb and wonderful joy of homecoming that he had not known since the first days of his marriage. He bounded through the door and into the kitchen of his home, caught up his wife with a great, lusty hug, and all the while said

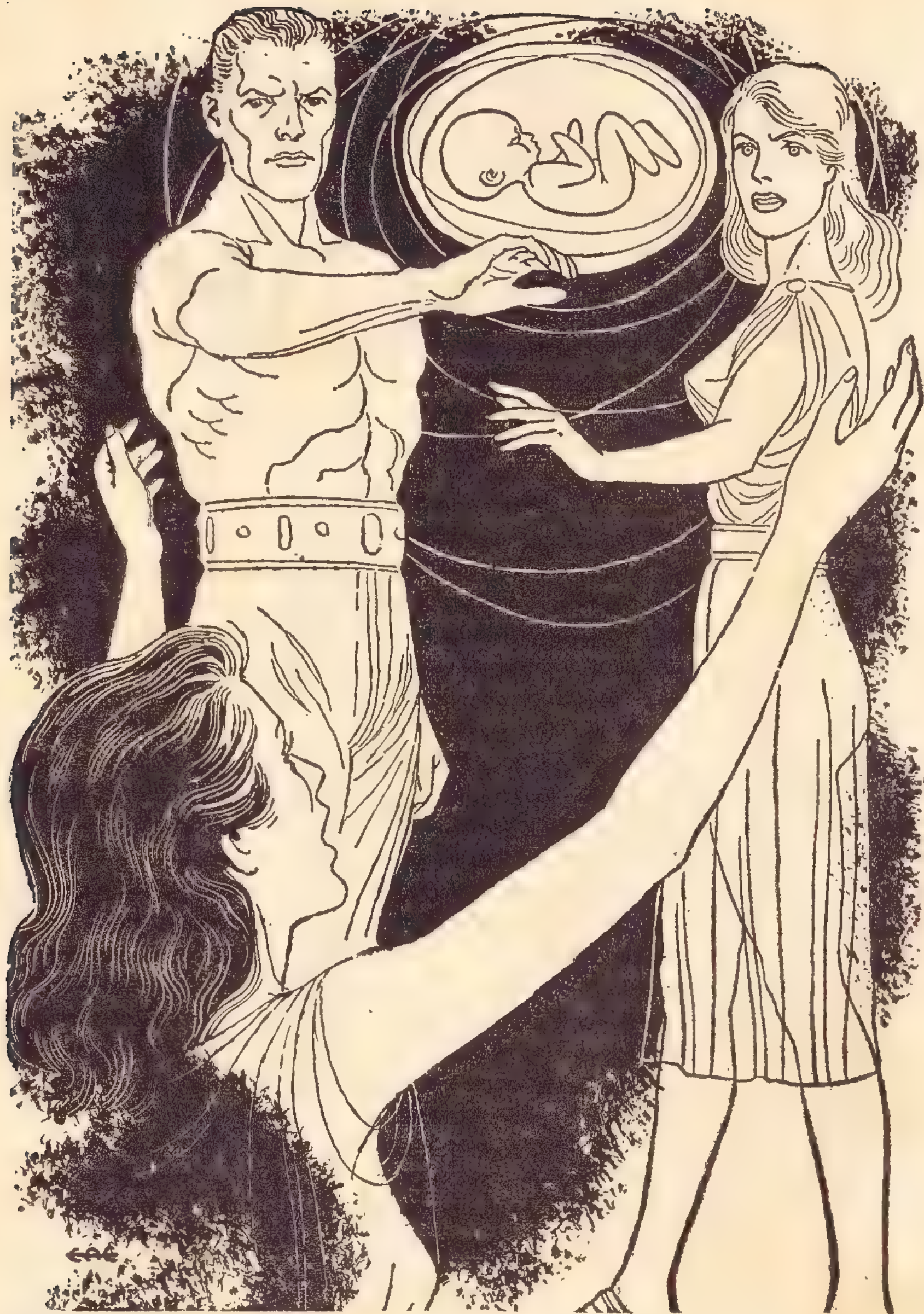
nothing, but just stood grinning, foolishly, like a happy bull.

"My goodness!" she said. "Put me down!"

He did but kept grinning. He wanted to say all the silly things; most of all he wanted to say "little mother" so that they could both laugh at the wonder of it. He wanted to hug her, too, but now he put her down, docilely, and sat at the kitchen table and began to eat lunch.

"Did you bring the check, Dave?" his wife asked.

"Yes," he said, although he thought such a question, well . . .



inappropriate at a time like this. "But I didn't fill the name in," he said. "Are you sure you want another David?"

She nodded, her face turned away. It occurred to him for the first time that she did not look happy. On this day of all days, not happy! He was thunder-struck. He rose immediately and went to her, catching her shoulders in his hands.

"Look, honey," he said slowly, "Jean, if you don't like the name . . ."

"Oh no," she said quickly, over her shoulder. "The name is fine."

"I thought, well," he faltered, "I wanted to have him named after me, but—"

Jean turned, smiled up at him warmly.

"David's a good name. The best name." She perched on tip-toe to kiss him quickly. "Don't worry about me, darling, I'm just nervous." She walked past him to the table. "Eat your lunch," she said.

All worry flowed out of his mind. Dave sat down again, his eyes following the small, slim form of his wife as she moved in the kitchen. He grinned happily, absently ate his lunch, spilled coffee all over the table.

At three forty-five, shortly before the baby was to be delivered, they were together in the wait-

ing room. Dave by this time had commenced to twitch. There was of course nothing that could possibly go wrong. He was not bothered with that, what he was feeling now was a sensation of vast inadequacy. The stupendous prospect of being a father simply overwhelmed him. And so he smoked and twitched and stared at the waiting room door, while Jean beside him was . . . perfectly calm.

Had Dave been able to notice his wife, to see her clearly, he would have realized with alarm that she was not at all nervous. Or happy. Her face was set without lines, was cold. It was as if she was not feeling at all.

The baby, young Dave, was delivered promptly at four. He was not a beautiful baby. He was very red and noisy. The big Dave thought so but did not say so. He stood there quietly now, holding the boy, the grin long forgotten in staring at the living little thing he had created.

It was Jean who paid the check.

With a faint white hint of paleness in her cheeks, she watched as the government clerk recorded the delivery and gave her a receipt, stamped out a flowery new certificate of birth. At five after four they left the delivery room. In ten more minutes they were home, having

been gone not quite an hour.

Except for a plain table which was sunken by the wall, the freeze compartment was completely empty. Mr. Cutter felt an expectant chill at the cold bareness of the place, walked in to the center of the room and idly fingered the table. There was a port, at least. He tested and found that he could see out of it from a sitting position on the table. He was glad of that. He wanted to see open space again, to look out upon Earth for one last time.

Some of the other passengers were freezing already. Mr. Cutter could hear the clink of sealing doors down the passageway. He left the door of his own room open, sat uncomfortably on the table and stared out through the port.

He felt the ship lift under him with a sharp lurch, swore quietly at the hardness of the table. There were no more sudden moves after that, just a steady, gliding feeling of heaviness. He saw the maze that was Yorkport falling away below, fading in a cloud mist that closed in between. Gradually the white of the cloud was gone, until around him he could see only the speckled gleams of the upper atmosphere, and down below Earth was become an immense

and silvery plate, shining ever more brilliantly as he rose up into the black.

While Mr. Cutter was leaning forward into the port and staring, hands braced against the wall, a young lieutenant of the crew knocked quietly at his door. Mr. Cutter turned.

"You have an hour, sir," the lieutenant said respectfully. "Everyone must be frozen before acceleration begins."

"I know," said Cutter, and then, embarrassed: "I'd just like to . . . watch . . . for a while."

The lieutenant nodded. It was not a really unusual thing. There were still some people left who did not use the freeze fanatically, like a drug, to save for another time each possible moment of their lives. Some, but not many.

"Shall I inform you of the time?" the lieutenant asked.

"No, please," said Cutter, "don't bother. I'll go automatically with the ship. I'll make sure to strap myself in."

The lieutenant smiled amiably and left.

An hour, Cutter thought. He turned to look out of the port again. Now there was nothing there. Earth was a clear green light mixed in with the rest, mixed and lost among the billion ice chips of the stars.

After a while he left the port, wearied even of the stars, and

began to strap himself on the table. He forgot everything else now, as he often did on the table, in thinking of the freeze.

In a few moments he would be frozen, frozen as completely as anything could ever be, down to a temperature of absolute zero. Not an atom of him would move; he would have no growth or thought or life. He would lay here on the table for two years and more, and then he would be defrosted. And he would rise up from the table, two years from now, not one second older, not one electron of his being changed — thinking, even, the same thought he had had when the freeze began.

Mr. Cutter shook his head in contemplative awe. Although the freeze had been in use for all of his life, for more than two hundred years, to Mr. Cutter it was still an incredible thing. He lay upon the table thinking about it, wondering in what new way it would affect mankind.

Look what it has already done, he thought, for medicine. And then right away he thought of Davey, his grandson. Born from a bottle. They would never have accomplished that, he thought, without the freeze. He felt a surge of pleasure. A picture of Davey floated into his mind, young, warm, healthy. Normalcy and intelligence, thought Mr.

Cutter, have come from the freeze.

Mr. Cutter closed his eyes, remembering.

In the early days of the freeze, medicine was the first to benefit. For no one could die on an operating table, that was the first thing. If the patient was failing, why, then they froze him and studied his case at length, and if it was found that he could not be saved the patient was simply left in storage. Eventually medical science would become capable of curing him. On that day—be it a thousand years in the future—he could be revived.

This was the first and most dramatic development of the freeze. The effects of it cannot be overestimated. Medicine was free at last from the waste and futility of hurry and death. The healers of men were given the most important medicine of all: Time. Time unlimited, perhaps eternal.

And therefore medical science embarked upon the most spectacular era of progress in all history. There was not an experiment which was not helped by the freeze, not a single field which did not benefit. The grafting of arms, legs, eyes, even hearts became commonplace, for the living parts could be stored indefinitely. Thus the study of

the body, frozen, became one of the most exact sciences of man. And eventually, of course, they got around to babies.

The idea of bottled babies was not new. It had been mentioned and even attempted by prominent doctors of at least three preceding centuries, was believed by some scientists to be one of the greater goals of Man. With the freeze, that goal was soon realized.

The gestation of the baby outside the human body became a possibility in August of the year 2312. It was not very well publicized at the time—the public had first to be educated. And had the bottling process remained in private hands it is very likely that the bottled baby would have long remained a rarity.

But by the time the process had been perfected, the freeze had long been in widespread, public operation. The death rate of the system had therefore fallen to an all time low. Despite two atomic wars in the XXIst Century, the ancient fear of economists — overpopulation — had become the gravest problem of the day. Immigration to the stars in large numbers was as yet unpracticable. The Federation could see no way out except through drastic measures of birth control, and those were stubbornly opposed by religious

groups. So when the bottling process came, it was a gift from the gods.

The Federation quickly took it over, and began some of the most extensive and brilliant political maneuvering in history. Slowly, quietly, the virtues of the bottled baby were inserted into the public mind. Advertising began as a mild coercion, progressed through speeches and demonstrations and campaigns to an outright demand. Prominent husbands—upon the promise of political favor—forced bottled babies on their wives. Older women took up the practice, as well as Rh negatives, and women with defective wombs and pelvises. Entertainers, businesswomen—of which in these times there were many—accepted the bottling gladly, with the result that it became first a fad, then a fashion among the leading women in the great cities of the world. Thus it began at the top, and spread with increasing vigor down through all the levels of society.

Religious sects continued to oppose the bottling, but their power slowly faded. The most important reason for this was the bottled baby itself. It had all the advantages. It was always born—or, in contemporary slang, ‘un-corked’—physically perfect,

and it was almost impossible for one to be injured in the bottle. Factors like that of Mongolian birth, which is caused by lack of oxygen, disappeared entirely. And any hereditary imperfections in the embryo were discovered at an early stage—at which point the government operators quietly let the embryo die and informed the parents that the birth had not “taken.” Subtly, the Federation set out to weed out the sports and freaks of humanity and no one questioned the agencies, for there was no trouble in having another baby, at no further cost. Few people on Earth really knew what happened to the defective embryos, and few, to tell the truth, cared.

As the years passed and the bottling process ate its way into the custom and habit of Man, the Federation at last began to bear down. The great era of the battle for birth control began. But the standard of living, despite the great star conquests, was steadily decreasing, and the success of the movement was inevitable. In the year 2430, the first law was passed. The parents of all bottled babies—by this time 98% of the population—were henceforth to submit to physical and psychological tests, the results of which would determine the number of babies

they might legally have. Shortly another bill was passed limiting the number of bottled births in any one family—regardless of circumstances—to two. The same bill forbade children to moronic parents. Another fifty years, and the end of the cycle was reached. No human mother was ever again allowed to bear her baby within her own body.

Family life continued very much as it always had, but slowly the effects of the bottling began to come home. The women of Earth could bear their children early—it was simple to have a number of eggs removed from the body and frozen for use at any later time—and sterilization at government hospitals was free. Hence the women were sterilized. And freed from the fear of pregnancy, women shortly achieved one of the dreams of the ages: sexual equality with men. In consequence, the family as an institution began to fall apart. Marriage, although few then living realized it, was doomed.

In 2565 then, when Cutter began his trip to the stars, he was one of the few remaining Earthmen to have been born from a mother's body.

There was a brief, stinging buzz, and Mr. Cutter opened his eyes. The red warning light of

the freeze was on above him. Five minutes. Mr. Cutter examined his straps, found them all tight. It was very important that they did not slip, for if his frozen body worked loose and was subjected to the varied pressures of acceleration—Mr. Cutter shuddered—a piece of him could chip off. But the straps were tight and there was no worry about that. Mr. Cutter lay down and waited.

He did not bother to think about where he was going—there would be plenty of time for that later—now he thought of his daughter, Jean. He remembered her face as he had seen it last. Pale, very pale. He tried to remember when he had seen her looking well and could not. There was nothing wrong with her physically; the doctor's report had simply recommended that she be sterilized. Mr. Cutter knew what that meant. It was very common, nowadays.

Mr. Cutter shrugged sadly. Women!

And once again, as he lay there, the picture of the face of little Davey flashed gently before his mind. Small and sweet and dimpled, holding that. . . .

. . . . Scraggy little doll of his. God, he was a cute—

Mr. Cutter blinked. He blinked again, feeling the numbness of his mind. Up on the ceiling where

the red light was he looked. The light was out.

Done, he thought in wonder, just like that. More than two years already gone.

Shaking his head mutely, he began to unbuckle the straps he had tied just—it seemed—just a moment before. The freeze had come and gone, and the two year trip was done.

"She must be sterilized, Dave," said the man.

"But she won't—" Dave began.

"For safety's sake at least. Tell her that it will be for the sake of the baby." The man eyed Dave sincerely. "It's possible, you know, that she may react violently toward your baby."

Dave laid his head upon large thick hands.

"At any event," the man went on, "your wife will undoubtedly harbor some grudge against your baby, and we can't allow that. You realize, of course, how badly a child could develop under those circumstances."

"Yes," Dave said, not moving.

The man rose from the desk and came around it to stand in front of Dave.

"Come, come," he said gently, "I'm sure your wife will come round."

"I don't know," Dave muttered. "I don't know. God, how she wants a baby, wants to bear

a baby." He looked appealingly at the doctor. "What can I do? You know how women are. I thought when we had little Davey—but it didn't help. I think she loves the kid, but—"

"Is she still having morning sickness?"

Dave groaned. "Yes. She's sick almost every morning. And she tells me about a feeling she has in her stomach, and that's all she does, all the time, think about it and imagine what it would be like to have a baby."

The man smiled wanly. "The maternal urge can be a very powerful thing."

Dave rose distractedly.

"Well it's hurting her, and it's hurting the kid. And I can't reason with her. Lord, what can I do?" Dave had reached the window, and now he leaned against it and stared up into the sky. He was a rare man. The doctor did not know what to make of him. Dave loved his wife.

"She refuses to come here for treatment," said the man. "If you could get her to come here everything would be all right. Once she was sterilized—"

Dave spun savagely.

"Sterilized? She won't even hear the word! You don't know what it means to her. If I mention it even she collapses and says she'll leave me, me *and* the baby." Dave stared at the man

without hope, his shoulders slowly sinking.

"You owe it to the baby," the man said, returning to his best card. "She has a duty to the baby, tell her that. After all, he's her own flesh and blood—"

"You know what she says to that, you know what she told me? 'How do I know it's mine?' she said."

The man looked at pityingly. That was no good. Dave had no use for pity. He left.

He took the freeze tunnel home, was frozen and defrosted and on the way saved twenty minutes of his life. When he was home and met Jean she smiled excitedly at him, her hands pressed to her stomach.

"I felt *movement*, Dave," she cried, "I felt it right here!"

"Honey," Dave began huskily—

"Yes I did, I really did." She nodded her head with a quick childlike motion, tumbling the blonde curls, and drew him through the door.

"Wouldn't it be wonderful? Oh honey, wouldn't it be wonderful?" She held his arm and gazed up into his face. He looked into her eyes, her blue and shining eyes, and thought: she's forgotten again. She doesn't remember that she can't have it.

"Where's Davey?" he asked,

trying to take her mind away. Jean motioned toward the bedroom. When he started to walk away she held his arm tightly and tried to catch his eye, and said pleadingly: "I did feel movement, Dave, I really, truly did."

He didn't meet her eyes. "I know," he said, and patted her arm gently, and went into Davey's room.

When he opened the door he heard Davey crying. He picked the child up and stared at him unhappily, saw the streaks of tears on the red little face and the way the jumper was bunched in a mess.

"Jean!" he called out in sudden anger, "haven't you been looking after him? The poor kid must have been—" He held himself with an effort. It wasn't her fault. Oh Lord, it was nobody's fault.

The baby had stopped crying, was reaching out a soft wet hand to play with his nose. Dave could not help but be struck again by the blue eyes. Jean's eyes, he thought, if she could only realize that. He's ours, he's healthy and he's ours, and that's all that's important.

He thought maybe he could talk about that now, so he took the baby with him and went back into the kitchen. Jean had supper ready and the baby's chair was by the table. Dave

placed the boy in it and started to say something, but just then Jean put her hands again on her stomach.

"It moved. It moved," she breathed ecstatically. "Oh Dave, come here and see!"

Dave sat for a long moment, then rose and went to her. He touched her stomach. He felt nothing. Her face fell quickly, pitifully.

"Oh, it's quiet now. Wait a minute, please, just a minute."

Dave sat next to her, trying hard to keep himself under control. He looked at her and . . . he started. He realized suddenly that she *was* getting heavy. A lance of fear hit him. Oh no, she couldn't—no, the contraceptives were a hundred percent effective. But in her state, nervous and unsleeping, why should she be heavy?

"Oh!" Jean yelped, and she grabbed his hand. "There, there! You see?"

And this time when she felt it, he felt it too.

On the fourth planet of Kuba, a star in the region of Pollux, Mr. Cutter lived alone. More or less alone, for although Mr. Cutter was the only man on the planet, he was not the only human being. He was surrounded by babies.

There were five thousand of

them, none of whom were more than ten nor less than nine months old. Their birth—they had been born on Kuba IV—had been a busy time for Mr. Cutter. Five thousand births in less than a month. Mr. Cutter had had very little time to himself. The process was fully automatic of course, but Mr. Cutter had been forced to maintain constant supervision over the apparatus, checking and rechecking the supposedly infallible un-corking and feeding machines. He had come through all right and his first year's report would soon be posted to Earth. Although several babies had been un-corked late, only one had died. There was no helping that—the bottle had cracked.

After the birth period Mr. Cutter had it relatively easy. The babies were being raised and taught mechanically, according to the system and methods of the Federation. Mr. Cutter had only to maintain a check on the apparatus from time to time, and make his own notes on the babies' progress.

As far as Mr. Cutter could tell, they were doing all right. Therefore he relaxed and began reading the books he had meant to read for a hundred years. It was, for the aging Mr. Cutter, an ideal job.

But there were interruptions.

One day, for example, there was an earthquake.

It came in the morning, rocked the whole vast building, cracked the dome in several places. Dozens of Mr. Cutter's machines were thrown out of alignment—the computers especially had a violent reaction—and the babies themselves had to be soothed with narcotics. Mr. Cutter roamed the whole building cursing, finding out what was to be done and dispatching robots to do it. In the end, when he thought he was through, he had to explain the whole thing to the main computers. Upon the basis of their given data, the analysts had only one available conclusion: the dome had been bombed. Thus Mr. Cutter found himself with neurotic machines as well as scared babies.

But in time the memory passed away, and the babies grew. Like a crop they grew, a crop of human beings. In twenty years and less, they would be working this planet, finding and controlling its materials, sending them to enrich the ravaged Solar System.

On a hundred other planets there were other domes and other babies; this was the greatest effort of the Federation. Each of the planets to which Earthmen had come would be built up and made ready for comfort-

able immigration, would be added to the strength and power of Man. Not gradually, but quickly, as quickly as possible. The long years of overpopulation, although nearly ended, had almost wrecked the System. Expansion was vital to Earthmen, and the Federation knew it. Quietly they set about the massive plan, for they knew something else.

Three intelligent races had already been discovered. Not yet advanced, but capable of advancing. Eventually there would be found a space-borne civilization on a level with Man. And Man would have to be ready.

Mr. Cutter knew all this, but did not think about it. He would be here for twenty years, here alone four hundred light years from Earth, and politics did not impress him. He read, he wrote, made a discriminate use of the freeze, and occasionally he slept.

One day he had visitors.

At the end of Mr. Cutter's first year, a Federation cruiser came down at Kuba IV, coming for Mr. Cutter's annual report. The visitors were aboard.

Mr. Cutter met the spaceship with casual interest, and was greeted—not by the expected sombre official, but by the smiling faces of his daughter, her husband, and her son. Mr. Cut-

ter was speechless with astonishment.

"Hi Dad!" Jean cried, rushing into his arms, and Dave came after, holding little Dave.

Mr. Cutter stood for a long while holding his daughter in his arms and staring at his grandson, and he could not understand it. Four hundred light years they had come to see him. Mr. Cutter blinked. Just in coming and going they would be five years away from Earth, and Dave's job, his home—

But then Jean lifted little Dave into his arms, and Mr. Cutter put off his questions. The calm official of the Federation quietly picked up Mr. Cutter's report and went back to the ship. Several minutes later, to Mr. Cutter's growing amazement, the cruiser took off.

"You're *staying*?" he cried, looking from one to the other.

Jean dimpled happily, the excitement of it gleaming in her eyes.

"Yes, Daddy. Oh, don't worry, we have permission. The authorities were perfectly willing to have us come out here to keep you company. They know we'll help you—keep you from being too lonesome anyway—and they don't have to pay us. So we can stay as long as we like."

Mr. Cutter gaped.

"You do want us, don't you

Daddy?"

"Yes, yes," Mr. Cutter stammered, and then: "Oh, yes! But—" he turned to Dave, who was standing quietly to the side, grinning as usual— "Your job, what about your job, your home?"

"I quit," Dave said simply. Then he chuckled. "I decided that since I had a father-in-law working for the government, I'd come live off him for a while. How about it, do you have enough rations, pard?"

Mr. Cutter grinned, waved a hand toward the building.

"If I can handle all of them, I guess I can feed you."

"Well," Jean said briskly, "then that's all we need."

But Mr. Cutter was still puzzled.

"What will you do? I mean, you'll be here for a long time, you know—do you want to freeze?" Suspicion hit him. "Is that it?" he said in quick disappointment, "you came out here just to get away from the law, so you could freeze for a few years?"

"Tell him, honey," Dave chuckled.

"Yes, confound it, tell me!" Mr. Cutter cried, "before I have a stroke. Your job, your home!"

"All right," Jean said soothingly. Then she looked at him proudly, with a clean, clear

sparkle in her eyes, and patted herself lightly on the stomach.

"Dad," she said, "I'm going to have a baby."

The room in which they sat was still revolving around Mr. Cutter's head, but he was slowly recovering. That he was absolutely against it they both knew, and they had known it long before they arrived, and therefore he said nothing. He had seen this coming for a long while, and it pained him to remember that he had done nothing, had not even tried to help. Maybe there was an excuse in the fact of his being a man, because he could not have been expected to understand what Jean was feeling . . . Well, he said to himself softly, no more of that. He realized now, as Dave had before him, that Jean was lost unless she had the baby, and he struggled to accept it.

"How much time?" he asked.

"About four months," Dave answered.

"Oh, my lord," breathed Mr. Cutter. He laid his head on his hands, then suddenly jerked upright.

"The ship!" he bellowed, "I've got to call the ship!" He jumped up and started for the door, but Dave caught him.

"No!"

Mr. Cutter struggled. "Don't

you see? Oh, you poor young fools! The baby, the baby"—he stammered—"who'll deliver the baby?"

Dave stared at him puzzledly while Jean, white-faced, sat tensely on the edge of her chair.

"The robots, sir," Dave said hopefully, "the mekmedics. Can't they handle the job?"

Mr. Cutter fumed.

"Of course they could, if they only knew how! But no mek-medic does know how! Obstetrics is a dead science, confound it, you should have known that!"

But Dave persisted.

"Can't they learn? I mean, couldn't we teach them?"

Mr. Cutter stopped struggling, tilted his head to glare at Dave.

"We? What could we teach them? Don't be a fool"—he paused as a thought hit him. And then he sagged a little further. "We have no books," he said desperately, "if only we had the right bo—"

Dave broke in.

"I brought the books." He pointed to a carton among the cases of their luggage. "I had a heck of a time, but I brought along every book on obstetrics I could find. We *can* do it, can't we? We can feed the knowledge to the robots—"

"No," said Mr. Cutter heavily. "Let me call the ship. It will be out of range soon and then we'll

be lost. Jean"—he turned to his daughter pleadingly—"don't do it. Don't take the chance."

Jean smiled brightly.

"What chance is there, father? Women have been having babies for thousands of years all by themselves. If worst comes to worst, why can't I?" She spoke very quickly because she realized she would have both of them against her. Dave had brought her only because he thought the mekmedics could handle the birth. The hard knot of stubbornness was again building up inside of her. Jean knew without question that she would bear this baby.

"The robots will work," she said flatly, "it's not that difficult. And if they can't, then you can." She was near to tears. "And if *you* can't, I'll have it all by myself!"

Dave looked significantly at Mr. Cutter and the old man shrugged.

"All right," he said, "we'll try."

"Now what about diet?" Mr. Cutter began.

Jean looked back at him innocently.

"What about it?"

"Well, aren't you on one?"

"No. Should I be?"

Mr. Cutter realized what he was up against. He whistled.

Dave looked on unhappily.

"I'll start one right away," Jean chimed brightly. "What should I have?"

"Who knows," Mr. Cutter muttered. "Look in one of those books. Lord, all I remember is that they used to put women on diets and—oh Lord, look in the book."

Dave went over to the carton of books, started going through it.

"Listen," Mr. Cutter said to Jean, "have you done anything at all?"

Jean flushed.

"No. I didn't know anything. Dave didn't—"

Mr. Cutter erupted in worried rage.

"How should Dave know anything? Women! Women!" He shook his head. Then another thought struck him. "I suppose you don't know what Rh factor you have?"

His answer was in Jean's frightened look.

"Oh, me," he said, and Dave began to look really worried.

"See here, father," Jean said sharply, "you're making it too hard! My goodness, everything will be all right. Women were having babies long before they knew anything about diets, and R-aitches—"

"Yes, and they were dying then too."

"Dying?" Dave yelped. "Now look—"

"All right, all right," Mr. Cutter waved a soothing hand. "Relax. We'll look everything up and do it according to the book."

He was amused, then touched by the hopeless expression on Dave's face. Mr. Cutter arose and started to leave, clapping an affectionate hand on Dave's shoulder.

"C'mon, son," he said, "let's get to this robot business. Take what books you can carry." He turned to gaze at Jean.

"Just like her mother," he said absently. And then he chuckled. "Only, a little fatter."

Before long they knew more about babies—as Mr. Cutter observed—than the Government did. They went through each of the intelligible books separately and in great detail, isolating the actual information which would have to go into the mekmedic, making absolutely certain that they did not miss a thing. Slowly they assembled the data and submitted it to the machine, and by the end of Jean's seventh month the work was completed. Every fact of the science of obstetrics which might conceivably be of use to the robot was now available to it. Their only worry now was that there was no way to run a trial. If there

was any part of the operation they had missed—Dave tried hard to relax. There was always the freeze.

"We can have the delivery performed in a freeze compartment," said Mr. Cutter. "Then if anything goes wrong we can turn on the freeze and save her, and take her back to Earth."

Dave's reply to that was simple and unnerving.

"We're not doctors. How do we know when something's wrong?"

Cutter shook it off. "The freeze will save her. If her breathing falls off at all, we'll turn it on."

But Dave smiled, now, much less often.

Day by day, of course, Jean was getting bigger. And loving it. Both Mr. Cutter and Dave were softened by the sweet pleasure in her face, the glowing happy eyes that neither had seen since the first days of her marriage. She moved slowly, awkwardly, being careful of the baby—being careful was all she knew about pregnancy. They made her a diet and she stuck to it strictly, even her morning sickness never really bothered her. The phenomena of movement, the feeling that had thrilled her since the fourth month, was a constant source of delight to her. A perfect, devot-

ed mother, she could feel the baby growing and living within her, and her mind was at peace.

The last two months were going. There was nothing much to do. They sat and waited and smiled at one another, and once in a while, a long while, Mr. Cutter took time to look at his charges. At these times he became aware of a peculiar feeling within him. These babies, these *bottled* babies, he was treating like robots.

It began according to the book. There were the pains, as they ought to be, coming at intervals. They took Jean into a freeze compartment long since prepared, fussed uselessly with the operating mekmedic. Even now there was nothing they could do, for once the pains began the robot took over.

And so they paced, the two of them, as no human father had done for a hundred years, and the sweat of waiting stood out upon their brows. They paced all that day and far into the night; Mr. Cutter's duties were forgotten. And at last the baby was born.

There was a feeble piping in the corridor, a rowdy little cry that froze them both. Then the mekmedic brought the baby in, wheeled it upon a carriage they had built.

Dave did not look at it, he wanted to go to Jean. But Mr. Cutter knew that Jean would be sleeping, and held him back. Mr. Cutter was first to see the baby.

He sucked in his breath; the hair of his body rose up in revulsion and trembled. His breath kept hissing through his teeth. He had forgotten about this. This was the thing he had not remembered. The war, the last great war.

The baby was a mutant.

"What is it?" Jean asked wanly but happily, "boy or girl?"

Mr. Cutter did not look directly at her. Dave broke and went to her, buried his head silently in the bedclothes by her shoulder.

Jean stared at him, then at Mr. Cutter, then she began to tremble.

"What happened? Is it dead, is—"

"Please." Mr. Cutter grasped her hand. "No. It's all right."

"I don't believe you. It's dead. It's dead. My baby—"

"No, it isn't," Mr. Cutter said strongly. "You can hear it now. Hear?"

Down the corridor in the silence the pipe of the baby came through.

Jean lay back weakly on the bed, closed her eyes. She reached her other hand to Dave.

"Oh, Dave, honey, you frightened me. Don't worry, dear, I'll be all right."

Dave kept his head down.

Mr. Cutter was the one to say it.

"Jean—kid—it's not all right."

Her eyes flicked open again, the blue in them wide with terror. Mr. Cutter tried to keep her from speaking, began to talk quickly, imploring.

"Look—Jean—you wanted to have a baby. That's what you wanted, isn't it? Yes. That's what you wanted, that's all. Well, you've had it, dear, you've born the child and it's alive and everything's finished. Isn't that what you want?" He was pleading and holding her hand. "You have Davey, kid, you have both your boys and me, you have us, so everything's all right. You've born a baby and you have a baby, that's enough for any woman, isn't it." He said it not like a question but like the truth.

Now Jean was beginning to cry. But Mr. Cutter knew that he was right, bearing the baby had been enough. If it died it would be all right because now she was a mother, really and truly a mother. But it hadn't died. It was alive now and that was the bad thing.

Now Mr. Cutter suddenly realized what a mistake it had been to tell her that the baby

was alive. He wanted to cut that out of her mind now, make her see—

"What's wrong with my baby," she said flatly, "let me see my baby."

"Jean—"

"Let me see my baby!" She was starting to scream. Mr. Cutter knew that she should never see the baby. Not ever. When she began to scream he leaned forward and slapped her face.

"Listen, there's nothing we could have done. A long time ago there was a war. Do you remember? Yes. There was an atomic war and it pretty nearly wrecked Earth, and a lot of people got doses of radiation. Some died but most of them lived, and most of those had babies. Mutants. You know about that. They used to be very common, but they're not anymore. You know why?"

She was looking at him dully so he shook her.

"We don't have mutants anymore because babies are born in bottles now, that's why. They kill them. The Federation sees to that. They can see the mutation in the embryo and they abort it, they let it die. There'll never be another mutant Earthman. But the bad genes are still there, crooked and waiting, and every now and then they come

out." He paused, feeling his own tears.

"They came out now."

Jean was not crying anymore.

"Let me see it," she said.

"No."

"Please," she said, gripping his hand.

The old man looked at the two of them, the father and the mother, out of deeply tired eyes.

"No. It would be no good."

"I'm going to keep it," she said, closing her eyes again and setting her mouth.

Mr. Cutter's voice was harsh.

"No."

"I will!"

Mr. Cutter waited until she stopped sobbing again and opened her eyes.

"It has no arms," he said.

Jean screamed.

"And no eyes."

"Let her alone!" Dave yelled. It was the first thing he had said.

"She has to know. She has to realize." He said to Jean: "Arms aren't bad, or even eyes. They could be fixed. But there are—other things. You can't let it live, you see? It's a freak!"

He rose up tearfully and gestured with his hands.

"There's nothing like it!" he cried, "nothing on Earth, or on the planets. It isn't human. Don't you see? Look at Davey. Do you want this—" he was

stammering, he waved an arm despairingly toward the meagre wail which was coming down the corridor—"do you want *this* to be your son, Davey's brother?"

"I don't care," Jean said.

"To hell with you! How about us? How about it? It will live alone, absolutely alone. Even the hunchbacks, the midgets, all the old freaks had others like them, had brothers. But this one will have nobody. How will Davey treat it? Can you guess? How will everyone treat it? The bottles have perfected us, the bottles have made us healthy and alike, and now all men are joined together. This baby will never be a part of us, or of anything. You'll condemn it to that?"

His anger, his sorrow got to her. In a flash she saw it. But she said:

"We could bring it up away from people."

"Where?"

"There'll always be a place—"

"There'll never be a place! Jean, Jean, think about Davey!"

For the first time since his birth, Jean remembered her son with a feeling of glad, almost wild affection. Oh, Davey, Davey, there was Davey to remember. He was hers, her flesh, and he was a beautiful baby. The vision of what the other was like came horribly into her mind—a thing,

a blasted, mangled thing. She shuddered.

Mr. Cutter realized that the struggle was over and he had won. Jean was still sobbing softly. It was not quick, and she would think about it for a long time, but the worst part was done. She would be going back to Earth now, and all the wildness and rebellion would be gone. Mr. Cutter began to sag inside, feeling the weight of years and of living.

"Thank you," he said quietly. "You're a real mother now. Everything will be all right."

Mr. Cutter left the room, leaving them silent together. He came to the carriage upon which the new baby rested, crying feebly. Before he did what had to be done he paused and looked at the thing which was his grandchild.

He could not feel anything for it. The thought that it was his own grandchild revolted him. It was easy, so easy for Mr. Cutter to see that the baby was inhuman, simply because no other baby in the universe was like it.

And thank God for that, thought Mr. Cutter.

He pushed the carriage before him, moving away from Jean's room.

In a little while the last of all the imperfect ones was dead. †



A LACK OF



VERISIMILITUDE

BY WALT SHELDON

Dear Editor:

Listen, I ask you now—are you being fair?

I just got your note about those six Martian stories, and I can see I'm going to have to tell you exactly what happened.

It was just after one of those Taos parties that I met the—well, you name it. The thing that called itself Kit Carson. I'll admit I'd had a few. But cold sober—cold, light-of-the-morning sober—it would have seemed just as nightmarish, just as mad.

Now only in Taos, New Mexico—once the home of Kit Carson, by the way—would you find such parties, and would you meet Dr. August the way I did. Only there would Doc have been able to keep that *thing* of his. Without a collar and license, anyway. No one bats an eye in Taos—it's a special quality of the place, like the mountains, the sagebrush, the big turquoise sky, and the artists and writers and loafers and solid citizens who come here to breathe in harmony the clear air of seven thousand feet.

That air is like champagne. The champagne, however, hardly resembles air—potables at this altitude pack an extra kick. We were suffering ourselves to be thus kicked the evening it all started. Fredric Brown and Mack Reynolds and myself—we'd all gathered in the *cantina*

at the Taos Inn. Piñon crackled in the fireplace. We had taken the precaution of unplugging the juke box. We wanted only a few quiet drinks, some gentle camaraderie and a bit of *gemütlichkeit*. These were our good intentions. With them we proceeded to pave you-know-where.

"I just thought of a new quality," said Fred. "Taoscience." He talks like that. You'll be sitting there and out of a blue sky he'll say something like that.

"What the devil is Tao-science?" asked Mack Reynolds, shifting in his chair. He shifts in chairs as an elephant would gambol in a bird bath. He has a mustache and glasses and looks shaggy.

"Taoscience," said Fred solemnly, "is merely a Taos conscience."

"There is no such thing," said Mack.

"That's right. Therefore it becomes a new symbol of nothingness." Fred stared moodily into the oily slick of his tokay. How he can drink that stuff I don't know. But then how Fred Brown is Fred Brown I don't know, either: he's a small, quiet fellow with the face of a thin owl and a sandy mustache. He doesn't look at all like a man who has written some of the most original science fiction ever written, plus a flock of prize murder mys-

teries—hardboiled ones.

"Maybe you ought to talk to his new scientist in town," said Mack. "I personally don't understand you. You're obscure, Brown."

"What new scientist?" asked Fred.

"Doctor August." Mack leaned back, threatening the existence of his chair. Mack came to Taos to write science fiction, but he's a former newspaperman and has a way-of finding out everything that goes on in town. "August quit or something down at Los Alamos and came here to work on a project of his own. Has an income. All very hushhush. You're not supposed to breathe a word of it to anybody. Neither am I. If there's an F.B.I. man under the table, we're sunk."

"Doctor August," I said thoughtfully. "Is he a physicist or what? Where does he live?"

"He's taken that old place out near the pueblo," Mack said, bulking around to look at me. "I think he specializes in cosmic rays or something. And I know why you ask me."

"Why do I ask you?" I tilted my beer.

"Because you're going to go out and pick up some gobbledygook from him. *N'est ce pas?* No? *Nicht wahr?*"

"Maybe," I said. "Hell, if you're going to write science

fiction you ought to learn all you can about science. Or am I being naive?"

Fred said, "You are being misguided. You can know too much about a thing. If I knew too much about science I would never have written *What Mad Universe*, or *The Star-Mouse*, to name a couple. I wouldn't have believed that the things I made happen could happen. The first man to reach the farthest star will be the man who doesn't know it can't be done."

"Say!" said Mack, leaning forward. "That's an idea for a story! There's this guy, see, who wants to reach a star—"

"You can have it for five bucks," said Fred.

"Go to hell," said Mack.

"All right, take the idea free, then. But tell me if you don't use it—maybe I'll want to do it myself some time."

I said, "Why don't you compromise and give the idea to me? I can use more. I haven't turned out my quota yet this month."

"You won't do it sitting here in Taos Inn drinking beer," said Fred. "How can you drink that stuff, anyway?" He twirled his own tokay glass.

"Oh, nuts," I said. Writers are given to original expressions like that. "Let's have another round."

So we had another round and I sat back and a little apart from the table and brooded. My quota was way down this month. It had been down last month, and the month before. I'd put the time in at the typewriter, but just hadn't been able to turn out fiction in any quantity. And there was the house we were buying and the stove to be paid for and a few old doctor bills and shoes for four tiny feet and a bar bill here at the Inn, and one thing and another. I'd been corresponding with some other writers about this matter of output and production. In particular I'd been asking one new discovery how he did it—his stuff was in almost any magazine you'd pick up on the stands. He'd written to me in great detail about his theories on writing and life in general—but I still didn't know how he did it.

I recalled one of the letters I'd written to him. "How do you do it?" I had asked him. "Do you have four arms and two typewriters?" That, I thought dreamily, would really be an asset for a writer. Like unlimited credit and an understanding wife.

We had another round and yet another. Some people started to drift in. I don't remember who, exactly: the usual mixture of artists and bookkeepers and gi-

golos and millionaires, I suppose. I was still thinking about my output, and also about this Doc August. Maybe I *would* get some dope from him. Real, deep science stuff, maybe—flesh for the story skeletons in my file. Stimulus, to get me going . . .

Another round of drinks.

A thin old gal with Indian bracelets up to her elbows and a face like a gnu going around to everybody and saying, "Come on up to my place. We'll finish the party there. Come on. Let's go." Somebody calling her Una, so that must have been her name. "Let's go!"

On the ride out, five of us piled in the front seat of a station wagon. You'd get landsick if you rode in back, said Una cryptically.

Her house—a huge, rambling adobe hacienda with a fireplace as big as a witch's cave. People milling about . . . artists, bookkeepers, gigolos and millionaires. Mack Reynolds getting into a political argument, Fred Brown finding a chess set and an opponent in a far corner. Una steering me to the refreshment table; standing there was a bowl of scotch — pure scotch — crackers beside it. You had to dip it out in a consomme cup and eat it with a spoon, Una explained. Rule of the house. I, Taos citizen, did not bat an eye. I took

my cup of scotch and my crackers to another far corner.

I bumped into a gent with a purple beard and a patch over his eye. Well, the beard looked purple in that unsteady light, anyway. Through that scotch mist. I bumped into this party by edging into the corner and trying to watch the crowd at the same time. His cup of scotch spilled all over him, all over his purple beard and tweed suit and camel's hair sweater.

"Gosh, I'm sorry," I said. "Let me have your suit dry-cleaned for you." It's the thing to say. You don't *really* have any intention of spending a buck or so to send the guy's duds to the cleaners.

"Okay," said the man with the purple beard. "I'll send the suit to you tomorrow. What's your name and address?"

I stared at him a little more closely, then. Any man whose logic was better than his manners deserved a closer stare. He was short—about five-seven and level with me — and stocky through the chest, and he had a thick, square, planted way of standing. His hands were strong and stubby. He was fifty or so, and I saw that his beard was really gray, but a very light gray and very soft in texture, so that it had a purple sheen. His eyes

were bright, icy blue—his one eye, anyway. It was one of these don't-miss-a-trick eyes.

"Just give the suit to the cleaners and tell 'em to charge it to Walt Sheldon," I said. "They know who I am." I spoke coldly. Honor to uphold, after all. "And now, sir, if I may inquire your name?"

"You don't have to be so damn formal," said Purple-beard. "Relax, kid. My name's August. I get called Doc. If you didn't really want to send the suit to the cleaners what the hell did you ask me for?"

I said, "I don't know. Seemed the thing to do. Here—I'll make peace. I'll give you my scotch and crackers."

"Just the scotch, thanks," said August. He took it and drained it neatly, not getting a drop on his beard. Must have taken years of practice. He smacked his lips when he finished. "Matter of fact," he said, "I *do* know who you are. Know your work, anyway."

I brightened. Naturally. "My—work? You mean my—literary efforts?"

"Literary efforts, hell," he said, "I mean those bagatelles of yours that pop up in science fiction magazines once in a while. More fiction than science. Your junk, anyway."

"Is that so?" I was miffed.

I had little spikes sticking out all over me now. "Well, the editors bought 'em. They seemed to think they were worth buying. Anyway, science fiction isn't my main field. I'm an aviation specialist."

"Rats," said Doc August. He looked me over. "You haven't got another drink on you, have you?"

I said, "Listen, if I had a drink, and you were Ray Mil-land, and I was sorry for you, I wouldn't give it to you."

"Let's not be emotional," August said. "Now I can see you aren't scientifically trained. Now it's clear."

"What do you mean, I'm not scientifically trained? I'll have you know I'm a qualified weather man, navigator, radio engineer, and—"

"Kid stuff."

"Okay, Grandpa. What are you?"

"Well, I've three degrees in math and physics and I've done a book on cybernetics which utterly refutes its founder's theories, but this, too, is all kid stuff. Actually I'm a parapsychotopologist."

"You sound," I muttered gloomily, "like just another Taos phony to me."

August said, "Good, I like you."

"What?"

"I like all people who have the guts to insult other people. Let's go have a drink together."

I shrugged. "All right. The refreshment table's over there. You run interference and I'll carry the drinks."

"Not over there," said August. "Let's go out to my joint. Too crowded here. Too darned polite. Everybody's being careful of everybody else's feelings. Makes my skin crawl."

"Okay," I said. "What have I got to lose?"

I wish right then and there someone had answered that question. Accurately. Then never, never would I have gone to Doc August's that night. Never.

We took his jeep. He lived up toward the pueblo at the skirts of the mountains in one of those old, made-over adobe houses. We had to leave the main road and bounce over ruts for about five minutes to get to it. There was a part-moon. August's beard, as he drove, looked more pale and purple than ever. When we pulled up to the house a huge, razor-lean dog came out and barked at us.

"Shut up, Ganymede," said August, getting out. The dog slunk away. "Bred him myself," said August. "Wolf and greyhound, with just a tempering of Doberman Pinscher."

"Let's go someplace and pinsch Dobermans," I said.

August said, "Get hold of yourself."

We went inside. There was one big, main room in the center of the house. It was decorated in the usual Southwest way: Indian pottery and Navajo and Chimayo blankets. A picture window in the back looked out over the mountains, the rolling, lonely foothills of the Sangre de Cristos. I stared at them and had a recurring notion of mine—that you could walk a hundred yards or so and probably stand where no human had ever stood before.

August came back after a moment with drinks. The drinks were green. I stared at mine and said, "What the hell?"

"Never have absinthe before? You haven't lived, kid. This is real stuff, too. I think it even comes under the Harrison Narcotic Act."

"I knew I'd get some dope from you," I said. I gulped.

He looked at me disgustedly. "I'll get you another, but this time, sip it."

"Okay, okay, who cares?" I said. The room was rocking gently.

After he brought the second drink he made me sit down facing the big picture window. He pulled up a Mexican pigskin

chair. "Now," he said.

"Now what?"

"The only reason I'm telling you what I'm going to tell you is that you won't understand it, anyway. But I've got to talk to *somebody* about it. Partly a human failing, a desire to brag a bit, partly to help clear some of it in my own mind by talking about it."

"About what? What's it all about? Look, I better get home. My wife'll be furious. I just started out to have a couple of quick ones with Brown and Reynolds at the Inn."

"Stay where you are!" said August.

There was something in his voice.

I stayed.

"Now. Look out of the window. Not so far—look at that little shack right next to the house. That little 'dobe shack."

"Your garage?"

"It's not a garage. It's the adobe of an e.t. Know what an e.t. is?"

"Certainly. An electrical transcription. I feel transcribed right now. The following young man is transcribed." I started to whirl my head around in a flat circle.

"Be still." August was leaning forward, wagging his purple beard. His one eye had cold fire

in it, under the ice somewhere. "An e.t.," he said, "is an extra-terrestrial. A being from a world other than our own."

"You mean a Bem? Old stuff. Stef fans have known all about Bems for years. Fans know ET's, both A.D. and B.C. Even BMOC's and VIP's tire of same PDQ."

"Shut up," said August. "As a matter of fact I got my idea for my original research from a science fiction magazine. I forget the story. It wasn't one of yours, anyway. It was a good one."

"Thanks."

"It was a kind of detective science-fiction story. Laid in the west, so that made it a kind of western-detective-science fiction. Hero was a ski instructor—sort of a sports-western-detective-science-fiction, I guess you could say. And there was this girl. I guess actually it was a love sports western detective science-fiction."

"On with the story," I said, "I yawn."

"Well, there were these e. t.'s invading our planet and nobody knew quite how to capture them. They were elusive—not subject to the laws of solid matter. Anyway, the writer was closer to the truth than he knew. I'd already been making some research on molecular separation

and psychokinesis. You know that the nature of the atom is magnetic - electro-kinetic - whatever you want to call it. The big puzzle has always been the binding force: just why should protons and neutrons be packed so tightly in the nucleus? Just what was the relation of this to gravity? Partially Einstein's four new equations answer it. You know, zero equals $i-k$ plus or minus el times G , and so on."

"I don't know," I said. "Or as a Greek friend of mine once declared—it's all mathematics to me."

He kept right on. Never heard me. "But the Generalized Theory of Gravitation only approaches this basic force from the physical side. Actually, its definition of 'basic force' gives the clue. It's both physical *and* metaphysical. The monistic trend of all science demands that a new universal theory answer everything—but how few have insisted on that basic qualification!"

"How few, how few," I said sleepily. "How about another drink?"

"Certainly," he said, taking my glass.

"Got any beer instead?"

"If you insist." He shrugged.

While he was gone I stared at the box-like adobe shack. The

adobe of the e.t. "Good old adobe abode," I murmured. There was a little square window in it. As I watched it seemed a tendril-like curling thing came out of it, swaying a bit, testing the night air. I stared. "Hallucination," I told myself. "Pure hallucination. It's that absinthe."

August was back presently; the pigskin chair creaked as he sat again. He handed me my beer. "I can see," he said, "That it's no use even trying to explain to you the basic universal force whose nature I have determined. You're hep to less than I thought. Let's make it simple. Let's just put it this way. There's been all kinds of evidence that e.t.'s exist, even that they've visited our planet. Took me years to analyze all of it and decide just what kind of beings some of them might be. I got on the track of a particular species. From a particular planet. Mars, if you really must know. There'd been a strong movement of these creatures just south of Fort Benning during the war."

"That's how it started, then, huh?"

"That's how what started?"

"Martian through Georgia."

"Shut up," said August. And kept talking. "These creatures, if that they can be called, were neither animal, vegetable, nor mineral. What were they? Ab-

stractions? Well, perhaps. Most accurately, they were concentrated globs of basic force, in the way an electron is simply a charge of energy set in one relatively continuous time-place."

"That's interesting," I said mildly.

Doc August stared at me and shook his head sadly. "How to get to your mind? How to speak to someone when he doesn't have enough language?" He stood up suddenly. "Only one thing to do. Come on out to the shack and I'll show the e.t. to you."

"Show him to me?" I blinked. "I thought you said he was an abstraction. Pure force. How can you see something like that?"

"Well, he had to take *some* form. I call him 'he' for convenience—actually he has no sex. He's dubbed himself Kit Carson. He had to have a name, too, you see. And since Kit Carson's grave is here in Taos, and since he's interested in that period of history—"

"You mean he looks like a man? How can he?"

"Simple enough. Once we understood the nature of Q force it wasn't hard to translate him into physical form. I—er—must admit we missed slightly. We didn't exactly get the humanoid form we were after."

Doc August was helping me from the chair now, and leading

me to the door.

Now let's get this all straight before we go any further. Remember, I'm explaining how this happened through my senses, because after all it's your reaction to those manuscripts I think is unfair. I think you should know that the events of this night were like a dream in one way, in that illogicalities seemed perfectly logical, and everything seemed to float—but on the other hand event followed event in the logical order. In the *waking* order. That's why I'm sure it all happened. That and the manuscripts. But we'll get to them later.

The night air was cool and I stood there quietly, feeling it on my cheek, as Doc August unlocked the door of the shack.

I edged back a little.

"Nothing to be afraid of," August said. "He's harmless, Capricious, that's all. If I didn't keep him locked up he'd be all over town. He'd start a flock of legends about devils appearing, footprints in the snow of the roof, and so on."

Doc threw the door open, reached in and snapped on the overhead light.

There it was—I'll never forget it; I'll never forget exactly how it looked in that moment. I stared. It was unquestionably a

living thing, it had identifiable features. They could be zoologically labeled, I mean. First, he stood upright on two appendages that might reasonably be called legs. He had a body. He had four arms and two heads.

"The heads are fraternal rather than identical," said Doc August chattily.

The Martian stood there. One head regarded us, grinning. The other was looking away. Deep thought. The little adobe room had no heating, but looked otherwise comfortable and well-equipped. There were gadgets for the thing's amusement. There was an easel and on the easel was a dry, vast, red and ochre landscape. You could almost feel yourself standing in it, small and alone, while the wind shuffled the dust about your feet. Immediately I thought of one of Ray Bradbury's Martian landscapes. I looked around the room some more and saw a cot and an easy chair and several shelves of books and a typewriter. Piles of yellow paper, typed-upon, lay in a basket.

"Wagh," said the head that was grinning. "Did you hosses bring this child a splash o' awardenty to tuck in his meat-bag?"

"What?" I asked.

August chuckled. "Kit Carson, remember?"

"Oh, he talks like him, too."

"Sure. Expert on the period. More than that, in just a few months with me he's educated himself completely. Equivalent of a B.A. in English. He's working on science, now. How about it, Kit?"

Kit was looking at me. When I refer to Kit from here on, I mean of course his right-hand head, the one that did all the talking. The other just seemed to stare and think. Kit looked me right in the eye, then, and said, "I wrote m'self off a sonnet-poem, I did."

"Oh?" I said politely. "Let's hear it."

"Why, shore," he said. He switched abruptly then to exquisite stage diction. Reminded me of Barrymore in his day. His eyes became dreamy as he recited:

"Come breed of ghostly mountain men—now breathe,
The wilderness of mountain mist again,
Now hear the angry mountain silence seethe,
About you with the steelhead mountain rain.
Take horn of Dupont, rifle, clay dudeen,
And hump rib crackled on a fire of dung,
Spice marrow-gut with gall and

running spleen—"

He stopped there. He shrugged his upper set of shoulders. "Ain't put m' paws on the next line, yet."

I said, "How about: 'Add curses from a mule skinner's tongue?' "

Kit thought it over. "Mebbsso. Close, anyways. I'll think it over in m'haid. M'other one."

"Kit's really very talented," August said. "Does excellent poems and sketches. By the hundreds."

I leaned heavily against the door jamb. "I—I need another drink."

"Okay," said Doc August. "I'll fetch a couple. You stay and get acquainted with Kit."

"Alone?"

Kit snorted.

Doc said, "Don't be such a coward. Are the heroes in those two bit yarns of yours such cowards?"

"That's different," I said. But he was already on his way.

"Say, there!" Kit was slithering toward me. "You one o' them writin' fellers?"

I jabbed a finger. "Keep away from me you—you Martian oddity!"

Kit looked amused. "Shucks, simmer down you ol' bull buffler, 'fore I lift yore hair. Come on—make beaver over here t' the

desk and read some o' this here stuff I done wrote out in words."

Somehow, then, I was in the easy chair and he was shoving typed pages at me. I wished August would hurry back with that drink. I started to read perfunctorily—in the way a man would finish tying his shoes if they were untied and the end of the world was coming.

I read:

WIND OF SILENCE

By Kit Carson

There is a wind on the Great Plain of Mars that has no voice. It comes with the speed of death from the Great Yellow Mountains, trailing poison dust as a running harridan trails her ragged hem . . .

I looked up. "Not bad."

"Shore," agreed Kit. "Only trouble is I cain't make stories out of it. Don't reckon I know enough 'bout yore kind o' folks." His four arms worked nervously as he talked. Four arms. Something clicked. Two heads. Four arms, two heads. Way in the bottom of my brain something clicked. That letter Bradbury had written to MacDonald. *How do you do it—four arms and two typewriters?* Was it fate that Bradbury had said that? That MacDonald had forwarded

the letter to me? Was it?

"Kit!" I stared at the monster. "I have a terrific idea!"

And then I started to tell him about it. Doc August came back with the drinks about then. He listened, too, cocking his purple beard and frowning.

"Well, maybe you can try it sometime," said Doc—

"I want to start right away! Tonight!" I said.

Doc took another sip of absinthe. "Well, I don't know—" I grabbed his lapels. "Listen, Doc, you've got to let me! I've got to know! It won't take long—it won't be any trouble. Got another typewriter in the house?"

"Well, I have a portable somewhere—"

"Get it. Get it right now. I've listened to your guff all evening—you owe me this much. I even drank your lousy absinthe. And I have a house to buy and old doctor's bills to pay, and I need shoes for four tiny feet, and there's a bar chit at the Inn—"

"Okay," grunted Doc August. "Against my better judgment, okay."

It took us some minutes to get the portable and then arrange it on the desk beside Kit's own typewriter. Kit needed only one chair, of course. He crossed his sets of arms so he could operate both typewriters at once. He

tried it out first.

Now is the time for all good Bems to come to the aid—

It worked.

"Now," I said. "Put in a white sheet, a carbon and a yellow. One in each machine. We'll do two yarns at once. I'll rough in the general idea as you go along. First titles—let's see—OUT ON A LIMBO—okay? And the second—EAT, DRINK AND BE WARY—"

The two typewriters clickety-clack-clacked and it was done.

"They'll both be about Mars, naturally," I said, getting dreamy-eyed. "The first one—a space pilot is lost on the Martian desert. His ship crashed and he life-rocketed down alone, but now he has to find the wreck to see if anybody survived. He jumped in a moment of panic. No, wait—he thought the others were out, but didn't realize they hadn't jumped until he left the lock. Okay, that's a start. Now, the second story. An expedition's landing on Mars and there's a fat man—the rocket ship's steward—who is a terrific gourmet. Can't resist any new taste thrill. Cooks and eats anything he comes across. As the story opens the larder is low—only enough for three more days. Let's knock those opening scenes off. You fill in what you know

about Mars. Plenty of good description now."

Clickety-clack-clack again. Solidly went the two typewriters. The first half page was done. Kit whipped the paper out skillfully and got the second page in. Clickety-clack-clack-click. At terrific speed.

I read over his shoulder:

. . . and was this loneliness, when there were whispering things in the air—things he could not see?

And on the other typewriter:

. . . tiny as the plants were, Bruleau knew they were food. In spite of their sharp edges, like sheared tin, in spite of their mottled green moray color, they were food.

I kept talking, outlining the narrative. Kit's second head was fully awake, now, staring down at the second typewriter and frowning.

Clickety - clack - clack - click-click-clack. No let up. On and on—pause only at the end of a page—and the mountain night deepening outside, making the stars only brighter. Shortly, the first grayness of dawn. Then the real dawn—a ballerina's arms spreading upward in the east, trailing pink—day itself suddenly crackling like a pomegranate over the Sangre de Cristos—

Kit Carson typed "The End" upon the sixth story we had done

that morning.

"That's all, Kit, I said.

"Wagh! This here's fun! Cain't we go on? I ain't tired yet!" said Kit.

"But I am." I turned and looked at the other corner and Doc August was tilted in a chair, fast asleep. I gathered up the manuscripts. "I'll split with you, of course," I told Kit.

"Fergit it, hoss," he said. "Don't have no use fer dinero in m' sack o' possibles, nohow. Take it on the prairie. Come back anytime—we'll play this here game again!"

"So long, hoss," I said, falling into the spirit of it.

"So long, beaver," said Kit.

I walked home. I tried to read the manuscripts as I trudged along, but my eyes were too heavy. I decided I'd sleep first, then go over them and mail them. All six of them. That practically filled my month's quota then and there!

Sleep . . . daze . . . machine steps . . . I don't even remember getting home and mumbling some sort of excuse to my wife as she tucked me in bed. The excuse trailed off into nothingness. . . .

Well, you already know I sent those manuscripts. You got them. What you don't know is that I waited a few days before I tried

to get in touch with Doc August or Kit Carson again. I had a million things to do, and besides I wanted to let my plans simmer. Success seemed in the bag. At the rate Kit Carson turned the stuff out I could flood the market with it—beat John MacDonald, even.

I started to dream about paying off the house . . . a station wagon . . . that Beechcraft Bonanza to fly in . . .

When I finally called Doc August on the phone the operator said, "That number's been disconnected."

"What?" I said. Although I'd heard her perfectly well. I went out to Doc's place. Nobody there. The windows were boarded and the little shack where Kit Carson had lived was empty. A dry and silent wind came from the canyon and flapped the open doors dismally—

"Yup, Doc's cleared town," the bank cashier told me. "Not a soul knows where he went."

Then your letter had to come. That was the last straw. I met Fred Brown and Mack Reynolds at our usual table in the Taos Inn the day it came. I showed them the letter, and then I told them everything that had happened that mad night.

Fred said, "You've got to stop drinking—bang—like that. This

tapering-off business never really works."

"You don't believe me?"

He shrugged. Mack shifted in his chair and looked the other way.

I slammed the table. "But it *must* have happened! I have the manuscripts! I sent them off!"

Fred twirled the stem of his tokay glass and picked the letter up—your letter—then shrugged again and bobbed his head from side to side the way he does.

"Go ahead, read it," said Mack.

So Fred read it aloud. Just to keep the record straight I'll remind you of what you wrote:

Dear Walt:

These six stories about Mars aren't bad, but I'm afraid they just miss. They lack verisimilitude. I'm speaking in relative terms, of course; none of our readers have actually been to

Mars, but in science fiction there must always be a feeling that the setting and action is real. That it happens as you read it.

In particular I was disappointed in your Martian landscapes. I suggest, if you want to write about Mars, you read some of Ray Bradbury's stuff and see how he does it—

Fred looked up then and blinked owlishly. "You see what too much research does for you?"

"At that," said Mack, "your crazy dream might be the basis for a story. There's this guy, see—"

"You can have it for five bucks," I told him.

He told me where to go. And it wasn't Mars.

Listen, I ask you now—is all this fair?

Sincerely,

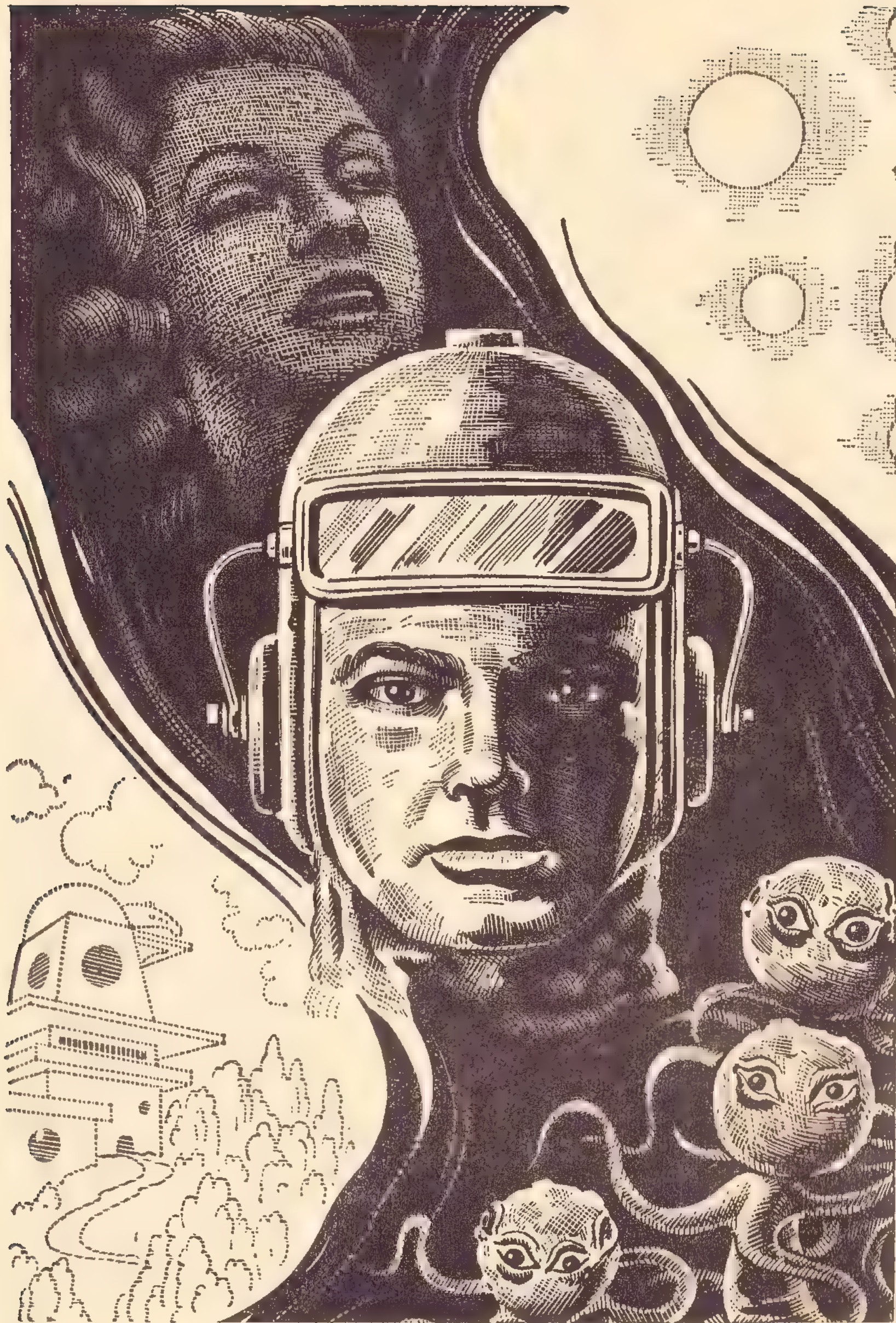
Walt.

STRAIGHT, PLACE AND SHOW

Your votes for the stories in the May issue of SPACE SCIENCE FICTION lined up as follows:

1. PURSUIT, by del Rey	1.61
2. THE EGO-MACHINE, by Kuttner	2.52
3. YOUTH, by Asimov	2.52
4. TO EACH HIS STAR, by Walton	3.81
5. ULTROOM ERROR, by Sohl	4.65

All stories were praised by some, and no story escaped without a few lusty gripes against it. But we're grateful to the large number who voted, and we hope you'll keep helping us with your opinions. Thank you.



WALK TO THE WORLD

A. J. B U D R Y S

ILLUSTRATED BY EBEL

When a place becomes Home, it stops being the world. The world is somewhere else, where you can see new people and hear new voices, and where nobody talks about the price of socks.

Whenever it rained on weekends, my father would stand in front of the big window in the living room and face the wheat fields as they danced and rippled. He would look at the wheat, and beyond it at the mountains, with the big ashtray slowly filling beside him. His feet would carry him in a sort of shuffling dance, back and forth, and his hips would swing as though he were walking down the long road that ran through the fields to the mountains, and over and through the mountains to the city.

Those were the two things everybody noticed about my father: the way he loved to walk, and the way he smoked. He would set himself on the road, a

pack of cigarettes in both pockets of the faded TSN jumper with the frayed sleeves, and he would stride along with the swaying hill man's gait he had learned on Earth until one pack of cigarettes was gone. Then he would turn around and come home.

I guess people wondered about him. During the week he would be working out in the fields like our neighbors, but even then he would stop the tractor on top of a rise, sometimes, and stand up with one leg thrown around the gear levers to steady him, and look at the road going out to the mountains. He would put one of the expensive Earthside cigarettes between his lips and light

a match one-handed, touching it to the cigarette without looking. Then he would sit down in the saddle again, and the converter would go Whee! for a minute, until he remembered to put the motor in gear, and then the tractor would roll down the other side of the rise with the cultivator combing the earth behind it.

"John," he said to me once, when Mom was in the kitchen and we were sitting in the living room, "don't you ever wonder where the world is?"

"The world's right here, isn't it, Dad?" I said, wondering what he meant. "We're on it. It's the fourth planet from Wolf, and people have been on it for a hundred years."

He shook his head slowly, crossing his lean legs as he reached for a cigarette in his shirt pocket. "The world used to be here, son, when the first men came here, when the grass grew where the wheat grows now, when the wind rolled over this hill instead of splitting to go around the house. Before that, the world was on Centaurus, and before that—before Columbus—the world was America, and before that it was anywhere that wasn't plowed and tended."

He lit the cigarette and leaned back in the comfortable chair that surrounded him with

foam and cloth. "But none of those places are the world now. They've become places like New York and Risley, New Jersey, and Leyport and Rogersville, Simbala and Kenton's Landing, and all of them are called Home. Home is a familiar place, son. Home is where the hearth is, Home is where you hang your hat. Home is where every wide space between the boards on the floor has a memory of a lost pin to be dug out, where every loose hinge on a door brings back the feel of a knob to be lifted before it can be turned. Home is where the cooking tastes just right." He stopped to change the record in the phonograph, and I could hear Mom washing the dishes.

"But when a place becomes Home, it stops being the world. Son, have you ever felt you'd like to go out and see the world?"

I thought about that for a minute. "You mean, the world is always somewhere else?"

"Something like that. The world is where the cracks in the floorboards are just places where dust gathers, places where the doors stick, where you have to put salt in your food, or put an extra piece of ice in your drink. You can see the world, John. You can ride the big ships, like I did, and find the world. You can see the new people, and hear the new voices. You can wear

the strange clothes and live in the strange houses, and for a while you are seeing the world."

I remembered the picture that hung from a nail in the attic, a picture of a young man in a black and silver uniform, proud in his black boots and lieutenant's stripes, with little crinkles at the corners of his eyes that were crows' feet now.

"And then, one day, you reach out in the dark for the light switch, and you find it without fumbling. You lift your feet so you won't trip over the place where the carpet has curled up at one edge," he went on. "Your friends come in from the big ships, looking for a good time, and you guide them to it. You tell them which drinks are the good drinks, and which prices are the right prices. When two people pass by in the street, murmuring exotic words, glamorous words, in the lilting, singing language of the strange world, and your friends ask you, eyes glittering with intrigue, what mystery they were discussing, you can tell them they were talking about the price of socks." My father sighed. "As soon after that as you can, you leave your new home, and you seek the world anew."

"You mean, you can see the world, but you can't live in it

without its becoming Home."

"Not for very long, son."

My mother came out of the kitchen, drying her hands.

"How's your homework coming along, Johnnie?" she asked. I wanted to stay and talk to my father about the world, but she looked at me as if she knew I hadn't even started my history term paper, so I went upstairs and began working on it.

On sunny week-ends, or even when it was just not raining, my father would get up very early in the morning and put on his jumper. He would eat breakfast alone in the kitchen, and then he would go to the cabinet where the cartons of cigarettes were kept, and fill his pockets. He would go out of the house, closing the door hard to wake-me, and walk down the road. I sometimes went to the window and watched him. He would look straight ahead of him, ignoring the wheat, swinging his arms, a cigarette in one hand leaving jagged curves of smoke in the air beside him.

At supper time he would be back with dust on his shoes, his hair rumpled. He would hang up the jumper, wash his hands, and sit down to eat. Sometimes my mother would tease him, and he would grin and tease her back, but sometimes she was very

quiet, and then he would be quiet too.

Once, when he was gone, my mother saw me standing in front of the window, smoking a cigarette, one of the local brands my father wouldn't touch. She came over to me and put an arm around me. "He likes to walk, doesn't he, Johnnie?" she said.

"He sure does," I answered, grinning.

"How about you, Johnnie? Do you like to walk, too?" For the first time I can remember, my mother's voice was anxious when she spoke to me.

"Shucks, Maw, I'm jest a little ol' country boy. Why should I want to go out and see the world?"

She shook her head. "You're Jack Gallery's son. Lieutenant John Gallery, Terrestrial Space Navy, Retired. And I retired him, Johnnie." She smiled, remembering.

"The first time I saw him, he was walking. He was striding up the path to the Port Director's office on Centaurus, his cap way back on his head, his heels hitting the ground hard, and he was coming off the ends of his toes, driving himself forward. His uniform was just a day too long unpressed, and the trim was cracked and blackened.

"I was looking out of the win-

dow, instead of transcribing a new set of directives as I should have been. I thought to myself, 'I wonder what's eating him!' The impatience trailed behind him and around him so thickly you could almost see it.

"In a few minutes, he was standing over my desk in the outer office.

" 'Would you tell the Port Director that Lieutenant Gallery of the *Anzio* would like to see him.'

" 'You're the captain of this vessel?'

" 'I am.'

" 'What do you wish to see the Port Director about?' I asked, although I knew the answer.

" 'I want to submit a written request for review of a Condition of Vessel report,' he answered, and took a manila envelope from under his arm. His big knuckles were red and white, and there was a smudge of grease under one eye that gave him a glowering look.

" 'Well, maybe I could give it to him,' I said. The *Anzio* had been red-lined the day before, and ordered to stand down until a new auxiliary drive could be fitted. Not even Jack Gallery, the darling of the TSN, according to at least one news service, could do anything about that.

"I guess he knew I was going to file his request and forget it,

because he shook his head. 'I'll give it to him myself,' he said.

"'Uh-huh. Look, Lieutenant, if you want to put yourself in a high sling, that's your business, and I'll tell the Director you're here, but I transcribed that order myself, and I know the decision's airtight. Nobody, and that includes Jack Gallery, is going to bust in on the Port Director of a very busy station and convince him otherwise.'

"I saw him start to simmer down, so I said very gently, 'And Lieutenant—there's grease on your face. I don't think he'd like that on top of your second best uniform.'

"So he never got to see the Port Director, but he did take me out long enough to give me an excuse to go to him almost every day when they brought him back to the Base Hospital a year later. He got the Medal of Honor for that wound of his, and the world it won for the Union.

"When he married me, he retired. He acted just like he did the time they red-lined his ship, but I finally convinced him.

"And that's the way your father is," my mother finished with a sigh. She squeezed my hand.

"So that's why you don't want me to take any long hikes," I said; I'd been wondering.

"I didn't say that, Johnnie, I never said that." Her deep eyes were turned away from me. Then she let go of my hand and walked quickly into the kitchen.

I stood at the window, looking past the wheat at the mountains, and far off, just at the big rise the road makes before it dips down into the valley below our house, I saw my father, the faded jumper black against the yellow dust, walking.

"I've taken you up to the mountaintop, John. Now I'm going to show you the world," my father said.

The road fell away from us, blacktopped now, and went into the city.

"That's Skyrdis City," my father said, although he knew I knew that. "The road runs into Skyrdis and becomes a street. The street leads to the spaceport."

I could see the flat white concrete plain on the other side of the buildings.

"The big ships leave the spaceport and go to the stars. Most of them go Home, but some of them go out to find a world." He stopped to light a cigarette. The wind pushed the jumper against his back and fluttered its open front. The match flared against his thumb, and he muttered, very softly, "Damn!"

"The ships go farther every day to find the world," my father continued, "For wherever men go, they build their houses and lay their streets, or they learn the strange languages, or they conquer the beings of these worlds, and the world becomes Home."

"So this road leads to the world," I said, watching a ship, all black and gold, sunlit, threading its way into the sky.

"You can walk toward the mountains from our house," my father replied. "And stand here looking at Skyrtis and the spaceport, and watch the ships going out. And that way, the road leads to the world." His eyes, too, were on the ship as it pushed through a cloud and broke out above it. "But, when you turn around, finally, and you see the road kinking through the wheat, then this road leads to Home." He coughed a little and threw the cigarette away. "Time to be getting back," he said.

We walked down the road, my father and I, his strides long and effortless, mine as long, but not as free and swinging. He had that walk from his father, he told me once, and I saw the old man, thin-bodied, in wash-bleached denims, crossing the pine-topped hills. That was the only way I pictured my grandfather, a picture of a man travel-

ing over the top of the hills.

It wasn't long after that the purring, catlike car came over the mountains and to our house, bending the wheat away from the black and silver fenders. A uniformed man drove the car, and another man rode in the back, looking at the fields and the house. He was about as old as my father, with the same lines at the eyes, but he wore a vice-admiral's uniform on sagging shoulders and tightly over his stomach. My father met him and took him into the house while the driver cramped his car into a circle and went back over the mountains.

"Hello, Bill," my father said. He shook the admiral's hand warmly, but his eyes, warm too, had something strange in them. "What's brought you out here?"

"No hurry about that, Jack," the admiral said, and I thought his voice was too accustomed to giving orders, but I liked him nevertheless. "How's Marion? And your son? Lord, he's a man!" He shook my hand, and looked at my father. "He looks like you," he said, and I liked him even more, but still I was not sure if I always would.

My mother came into the room, and for a moment, when she saw the admiral, she hesitated at the threshold and looked at my father too rapidly for him to

feel. But then she walked quickly across the room and took the admiral's hand. "Bill! How are you? And you used to swear they'd Summary Court you before you got too old to make reckless decisions!"

"Luck, I guess, Marion. And how're you?"

"Oh, fine," she said, and then she asked the same question my father had, in her own way. "Don't tell me they're giving you a week-end in the country along with the simply fabulous pay you must be drawing."

"You might say I was combining business with pleasure," he answered. "This is a beautiful house you have."

"Built it ourselves," my father said, and I could see that he and my mother knew their old friend well enough not to press him.

That was the way they spent the afternoon. Father showed him the land, and mother cooked supper. The admiral looked at everything, admiring the crop, enthusiastically praising the swimming in the valley stream, chuckling over the antics of the pups in the yard. Mother kept rattling pots in the kitchen, opening cabinets, closing drawers, thumbing the recipe book, busily. As I watched her and helped set the table, I saw she was keeping herself far too busy, even for a guest for supper.

"Mom," I said, "do you think Dad'll be taking an extra long walk?"

"Getting pretty smart, aren't you?" she said, looking up from a low cabinet. She straightened up, sighing. "He's getting pretty old for hiking, isn't he?"

"It's hard to say."

"It is, isn't it, Johnny? Very hard." She said it so that it was more than a cliché, and meant what it actually said. She went busily back to the stove.

Supper was a quiet meal. Every time either my mother, my father, or the admiral would raise their heads, I could see the uncertain looks in their eyes. Finally it was over, and we went into the living room. The admiral sat down facing the three of us.

"Jack, Marion, I've known you both for a long time, and there's no sense beating around," he said. Both mother and father sat quietly in their chairs, but they were quiet in different ways. "We used to think, back on Centaurus, that nothing would ever stop Jack Gallery." He said it matter of factly, and I had never been so proud of my father before.

"Well, nothing ever did," he went on. "You could have stayed in the service, Jack. That would wasn't anything big. When you retired, you were still the

champ."

And now you need the champ again, I thought. Somewhere, something needs to be done.

I think my mother would have said something, but my father put out his hand and touched hers.

"What I'm going to tell you is a military secret, Jack. You'll be going back to school soon, Young Jack. Remember not to talk about it."

Nobody had even called me that before.

"You know how we operate, Jack. The Union centers on Earth, and we send our ships in toward the center of the galaxy, fanning out so that we're gradually biting a chunk out of the galactic rim and making it ours." He leaned forward a bit. "Well, somebody else has the same idea."

"No!" my father exclaimed, and the look on his face was eagerness. "I used to tell you that'd happen someday." The admiral nodded. My mother looked at my father, but I don't understand how I could know that, because her face was in a shadow.

"They're a little farther in than we are, and their ships seem to be slower, or else they're not hustling like we are. Anyway, the damndest thing happened. One of our ships grounded on a planet two days after they

landed. Can you imagine that? Our ships buzzing around for months in that sector, and theirs doing the same thing, and not noticing each other?"

"Sounds like they've got an entirely different type of drive," my father said. "If that's true, then their whole concept of electronics must be different. Are they humanoid?"

"Human, or so close to it the difference isn't apparent. And about that drive—you always were a jump ahead of me, weren't you?—you're right, and about their science, too."

"Okay then, what's your problem? We've got all kinds of contact teams primed for just this situation," my father asked.

"They won't talk to us."

"Hostile?"

"Hostile! They haven't even got sidearms on those ships. It's been something like a thousand years since they had a war, and that, from the little they tell us, was more of a ritualistic affair with fixed combat areas, umpires, and a predetermined armistice date."

"Are you kidding?"

"I wish I was. Anytime somebody makes a pass at them, they just go away and leave him alone. They figure space is plenty big enough for everybody." The admiral gripped the arms of his

chair in frustration. "All of which is a fine and dandy way to live, but they're figuring to do just that to us. Turn around and go home."

"What on Earth for? Somebody accidentally fire something in their direction?"

"Not even that. Trouble is, their ships are privately operated. If one of them decides the grass is greener on the other side of the galaxy, he just packs and takes off with the wife and kids and anybody else that feels like tagging along. They go where they please, just drifting around until they find a likely looking world, and then they settle on it, if the natives don't mind. If there's room, he sends out a call for anybody else that's interested, they set up a trading colony, and after two or three hundred years the world's assimilated into their federation."

"Well, look, if this is just one tribe, or whatever, maybe their government's not as huffy as they are. Not that I see why they shouldn't be friendlier themselves. Maybe they just feel they can't speak for the whole federation," my father said, puzzled.

"With humans, you could say that, but not with these cookies. Each and every one of them's a member of their government. What they've got, actually, is a

perfectly co-ordinated anarchy, if you can imagine such a thing. They've got some kind of instantaneous communication, and every one of them carries a personal transceiver. Yeah—powered for interstellar distances. Everybody knows what everybody else is doing, and the system works fine, for them." The admiral's jaws clamped together. "So naturally, being so lily pure and untrammelled, they refuse to have anything to do with anything as inherently aggressive as a military organization."

"Did you explain to them that our economic and social structure won't let it be handled any other way?"

"I did. They want to know what we want with all that territory, then. Am I supposed to explain the paradoxes of human motives to these holier-than-thous?"

I didn't have time to consider the paradoxes of military thinking, because I realized, finally, what the admiral wanted. So did my father, and my mother must have guessed long before.

"You want me to talk to them?" my father asked quietly. My mother didn't say anything.

"I'm not trying to say please, Jack. You're the man for the job. If Jack Gallery can't explain it, it can't be done. If we don't

find *some* common ground, we'll lose them, and if we lose them, two thirds of our frontier is blocked off. We may not be little lambs of God, but we can't blast our way through them, and that's the only way they'll let us do it."

Oh, give yourself fifty years, admiral, I thought. Let fifty years of respect for the rights of another civilization hold you back. Let the pressure build up, and then see if you won't cut those peaceful strangers to ribbons. The world lies beyond them, admiral, and wherever men go, the places they reach become home, so that the world is always somewhere else, and must be reached.

"What happens if I say no?" my father asked, still in an even voice. There was a sound from my mother's chair, the sound people make when they start to speak and then think better of it.

"We find somebody else that isn't as good," the admiral said.

"There's no sense telling you I don't know there's a lot to hold you back," the admiral said, and I hated him. "Think it over and let me know tomorrow."

My father took his eyes from the mountains. "Sure, Bill. I'll let you know."

Tell him now, I thought. Why

not, why waste the Admiral's time, why hold back human progress? Tell him you'll go out and look at this whole set of new worlds he's offering you on a silver platter. You'll do it tomorrow anyhow. But all that time I was shouting inside, I was hoping he wouldn't.

My mother got up from the chair. How does a woman get up, what is it she does, that tells everyone in sight that there is something special, something dramatic, in this arising? The admiral's eyes locked on her, and my father's, too.

She walked into the kitchen. I heard her open the cabinet, and when she came back the jumper was over her arm and the half-case of Earthside cigarettes was held out in front of her.

"Here," she said, My father got up, his face half surprised, but half grateful, too. They stood together, the cigarettes and the jumper on the floor between them, and they did not speak.

The admiral got to his feet. "You don't have to be that quick about it, Marion," he said, but his voice was relieved.

"Shut up, you calculating machine," my mother said. "That's all you are. You got in a jam and you reached back in the files and pulled out the right folder. Well,

he's yours," she said scornfully. "But I don't think he'll perform in exactly the way you'd like him to. He'll solve it all for you, all right, but it won't be the way you and Jack Gallery solved things twenty years ago."

"Marion! Don't take that attitude. You're just upset," the admiral said. My mother looked at him, and he dropped his eyes. My father didn't say anything. He put on the jumper and took the cigarettes out to the porch. The admiral went outside when my father came back in to say goodbye.

My mother and I watched the growling car escape from our yard.

"He'll be back in a few months," I said.

"Yes, he'll be back," my mother answered me. "Ten years ago, I wouldn't have let him go. Ten years ago he was still like the admiral. He wanted to see the world."

Father had never told her about the search for the world, because she knew how he felt without needing words from him, but it surprised me to hear her using his exact phrase.

"The men of Earth go out," my mother said, "and they seek the world. The world must be new, unknown, an adventure, a thing to be discovered and conquered. But they come home,

Johnnie, like he always came home from the mountains."

"But when you turn around, finally, this road leads to Home," my father had told me and I understood, at last, that sometimes you walk to the mountains and the world just for the sake of being able to turn around and come home.

"The admiral—did you notice how he talked, Johnnie? Either we push through them, or we stop dead. Remember?" my mother asked. "But Jack and I were thinking about the thing the admiral never considered." She put an arm around my waist and held me strongly. "We can join them, Johnnie. They aren't very different from us, for they search for the world too. And we will go out to their worlds, and they will come to ours, for the world is anywhere, John, where you haven't been."

I thought of my father, talking to the strangers, and they would understand each other.

I kissed my mother, and looked at our home, which was warm and comfortable. How foolish, I thought, to go out to the world, if you will always come Home again.

"I'll never walk to the mountains, Mom," I said, struck by my revelation, but mother looked at me with eyes wiser than mine.

SAUCERS IN THE BELFRY

B Y L A R R Y S H A W

There have been a lot of rumors that Larry Shaw does not exist, though many people swear they've actually seen him. That should make him an expert on things which can't exist but seemingly do—like flying saucers!

Bernie the Brain is a Believer now. And it seems I'm an authority.

Bernie, of course, is a Broadway wise guy who believes in nothing except systems for picking winners, a little astrology, and such. He even sneers at them, though that's part of his business, which is knowing what's going to be hot at Belmont. Even as a kid he used to tell his mother the truth about Santa Claus and the stork.

Well, anyway, I have acquired the grudging respect of Bernie. As a horseplayer, I am his idea

of the worst sort of greenhorn; I never even lost my shirt. However, in a careless moment—while trying to explain why I'd chosen a long shot named Duquesne III, which paid \$32.80—I let it slip that I read science fiction. And this, in Bernie's eyes, makes me an authority on flying saucers.

Bernie *believes* in flying saucers. And if Bernie does, then my local survey is right. So does the man next to you on the subway, the mailman, the bus driver who shepherds your kids to school, the corner grocer, and

that blonde you were with last night. Also the taxi-driver who told me how he'd seen one in the Bronx yesterday. He knew it was a flying saucer because it looked like one—round and fuzzy and full of lights! Oh, well—I haven't been in a china shop lately, so maybe it's no bull.

Anyhow, nowadays it doesn't matter whether the dad-blamed things are real or not. Everyone believes in them. They're obviously, unquestionably folklore, and nothing short of book-burning and populace-purging can eliminate the belief and the believers. If I came out flatly and said they didn't exist, my old lovable kindergarten teacher might recognize me on the street some day and stone me to death for having committed sacrilege.

Bernie didn't ask whether they were. He looked at me with confidence verging on awe. "Look," he said, "you know all about this kinda stuff—what *are* they?"

I could have been smart, I guess, and told him about the ones whose existence can be proven, if you want to quibble. The latest model Italian Alfa Romeo racing car looks like and is officially named a *Disco Volante*—translation obvious. But Bernie was serious, and what could I tell him anyhow?

You see, I don't believe in anything—including sometimes myself. I won't say saucers are impossible, but I don't expect to find one in *my* cupboard, either. But I'm pretty sure that the flying saucers, as they've been described in public prints, *ain't*! I don't care how many believers there are, I don't believe in such flying gadgets, and I've got what I consider good reasons.

Suppose you're riding in a modern, streamlined automobile, travelling at a speed only about five per hour above the legal limit, down a reasonably good highway. Aside from the Burma-Shave signs and the bugs spattering all over your windshield, what do you notice? Wind noise!

By now, lots of people have seen flying saucers, and some at fairly close distances. But nobody has ever mentioned hearing any really spectacular noise from one. This is peculiar, to say the least. Anything solid moving a thousand miles an hour or so is going to disturb the surrounding atmosphere considerably, and that atmosphere is going to protest eloquently at such shabby treatment. Listen to a modern jet-plane, for instance. And when one goes up against the air with his broad side turned to it—well, things should hum. I pity the eardrums of a really close observer, no matter how much

racket his Cub is making to begin with. I wouldn't exactly relish being caught in the resulting turbulence if one of these objects flew up alongside me, snapped a quick X-ray, then turned suddenly and hightailed it for outer space. There'd be a wake—and I do mean wake!

All this holds true no matter what form of propulsion a craft uses, no matter how it is constructed, no matter where it comes from. If it's solid and moves, there are certain results. Blasted eardrums should have been one of them, if all the reports are true.

But somehow, they don't seem to know about that, though you'll probably hear more about their sound if enough people read this. When they know there should be sound, they'll hear it.

And how about those sudden turns they make? Conceivably, a ship might be built to take such stress, but scraping the occupants off the walls afterwards would be messy. You could claim that there were no occupants, but only recording instruments and such—but that brings up another point. Why should a race with enough brains to build saucers and instruments be so darned stupid?

If they're spying on us, why not put their instruments in an imitation Constellation, or a

little white cloud—something Terrans wouldn't notice as abnormal would certainly make a much more effective spy gimmick. Bernie the Brain has also asked not only *what* but also *why*. And that's a scientific approach that deserves a serious answer.

Why? If there are highly intelligent and curious Martians, what's wrong with their brains. Why don't they come on over to our yard, disguised as that blonde you were out with last night and observe us at really close range? Or sneak down at night into some deserted store in a big city where there are a lot of us? Why don't they swipe or build a few television sets and study our weaknesses in the comfort of their living rooms? TV frequencies are high enough to bounce right through the stratosphere and ionosphere. Why knock themselves out, darting around the atmosphere of an alien planet in ways that advertise their presence so crudely and blatantly?

Why, of all things, saucer-shaped spaceships? True, in space itself it doesn't matter what shape you use—but a sphere still holds the largest volume for the smallest area and weight. And we've only seen these in our atmosphere. We

know now that saucer-planes can fly, but these things are supposedly designed to run rings around jetplanes, and even play tag with V-2's. Why not pick a shape better fitted to supersonic travel?

And why Martians, anyhow? I have it on fairly reliable authority that there is damned little air on Mars. From this fact, we can make a few reasonably safe assumptions about Noseless Joe, the Martian. If he has any fires at all, they're undoubtedly in airtight temples, where they're worshipped and tended with care. Elsewhere, air is just too thin to sustain combustion. And that means no metallurgy got started! First fire, then metallurgy of a crude kind, then civilization—and only after you get the last can you find ways to get along without the first. How did they develop their aerodynamic crockery, anyhow?

Venus has plenty of air—but no oxygen, apparently. And no fire, therefore. Mercury and the moon have no air. Jupiter, Saturn, etc., don't have oxygen atmospheres. And the stars are a long way away. If the saucers came down here because they found we were playing with atomic energy, the stars are too far—it would take over four years for them to get the first signal about our bombs, even if

they could travel instantaneously. If they could do that, why worry about a bunch of pipsqueaks who'd just found out such kindergarten stuff as how to crack atoms?

Besides, we never heard of one going faster than light. The wild blue-yonder boys are flitting around at speeds of 1200 miles per hour or so these days, right here; so the speeds we've heard saucers make are no longer fantastic. But the simplest explanation is best, and why drag in Martians, if we don't need them? We can't explain the saucers' maneuverability unless we leave out a few things like mass and inertia, but if they are vehicles at all, they are much more likely to carry local than out-of-world license plates. And why would Russia, for instance, test new equipment over our territory, where one might be caught? Or why should we deny we have 'em if they're ours, when we could use 'em in Korea right now?

Ray Palmer, editor of *Other Worlds*, had an account of a man who rode in a flying saucer and should know all the answers. But this man apparently had something in common with Richard Shaver—he doesn't shave, at least not with Occam's Razor. Instead of looking for the simplest answer that explains the

most—or even one specific, provable, new fact—he explains something slightly strange with something completely outré, and explains that with something pretty near impossible. Saucer-men wind up all-knowing all-powerful, and—of course—sexy. If you like fantasy, this might be your meat. But as a revelation about the saucers, it reminds us of the guy who explained the fact the moon didn't fall by telling how all spirits went there when they died, and everyone knows that spirits are pure, and hence can't fall. I pass.

Then there is Kenneth Arnold, who makes considerably more sense. He'd probably have wound up in the loony bin if he hadn't made sense, since it was his report of saucers skitting around the West Coast that started the whole fuss, way back in July, 1947. He wouldn't, naturally, claim to be the first man ever to see strange objects or lights in the sky. He knows all the usual references to Charles Fort. Mr. Arnold, I'm sure, believes that he and others have seen tangible, intelligently directed flying saucers, and if all the reports he is fondest of quoting seem to describe entirely different things, what of it?

Incidentally, why should the saucers sometimes appear as lights? Recently, most of them

seem to be brightly shining objects. We all know it pays to advertise, but does that apply to spying, too? And if they really want us to know about them, why not just drop down in Times Square some day and wait for the reporters?

Nobody has yet come up with a good motive for them to act as they do. Yet the one thing we usually expect of intelligent life is a good reason for whatever it does. We also tend to believe that any ships that could cross space would be filled with a race that could understand rockets without having to spend years chasing them up and down. Why couldn't they capture a V-2 a hundred miles up, if they're curious? Or has anyone mislaid a V-2 lately that we haven't heard about?

There are plenty of questions, when you start thinking about it. Bernie the Brain is a believer, but even he asks questions. And I've still got a load of them left, myself.

Why did the saucers appear in such limited areas? Most of them have been over the United States, and the majority over a limited section of that—the southwest section. This was pointed out by John W. Campbell, Jr., in an editorial in *As-tounding Science Fiction*, and that editorial still remains one

of the best and fairest discussions on the subject we've seen. But the puzzle of the limited spread of saucers hasn't been answered yet.

Are we really so much better than the rest of the world that we're the only ones worth intensive study, and are people in that section the best of all of us? Could be, though Texas might kick at not having a fair share of merit visits. But it seems a little startling. Or is it that the saucermen can understand only English, and that only when it's spoken with the slight local accent found down there?

Why is there so little consistency to the reports? I'll discount the taxi driver's account, and stick to the printed ones. *Life* ran ten of the best authenticated cases recently. I tried to find a pattern, but no two accounts were enough alike to have much meaning. Saucers are anything from blobs of light to actual discs—all sizes, all shapes, all manner of behavior.

Why are there no good pictures? Most of them simply show light spots, singly or in groups, on the print. Any good darkroom man could turn out better results without a camera—and many have gotten such things accidentally by defective developing. The idea that the human eye can

see things the camera can't is pure bunk. Both work on the same principle—light focussed through a lens on a sensitive surface; and light isn't a metaphysical thing of pure subjective quality.

The camera, in fact, has the advantage of being able to use a telephoto lens that should show more detail.

What is the difference between these and the good old-fashioned fireballs, fairies (who sparkled with a spherical nimbus at night), or the visitations from God that used to upset the Bible Belt about fifty years ago? Why, with the coming of V-2's and atomic energy, did all the miraculous manifestations suddenly decide to turn into saucers from space?

What ever came of those accounts of saucers that had cracked up? They were just as well known as a lot of the other accounts, but the official interviews that were to be given on them somehow never were scheduled. What happened to the little green men who ran under a car when chased away by a housewife's broom? In fact, after five years of studying the things, why don't we know more about them than we did five years ago?

Now I've always believed that some of the accounts of things seen were true, as far as the fact

that people had seen something. But hysteria-cases aside, just what had they seen? I've been waiting for someone who was an honest and competent scientist to tackle the problem, in the hope he could explain things. And it seems finally that there is such a case, and a theory that does make sense.

Donald H. Menzel, professor of astrophysics at Harvard University, saw his flying saucers down near Alamogordo, N. M., one night. From what I can learn, he showed no hysteria about it. He saw two hazy discs in the sky which shone with a bluish light, and reported it to the Air Force. Then he went out to dig up some facts, asking himself all the obvious questions. As a scientist, he eliminated all cases that were undoubtedly the planet Venus, hoaxes, circular saw blades, or weather balloons. He included globes of fire and such, recorded as far back as 1893. And he found a pattern from the bare facts.

Saucers appear most commonly in hot, desert areas, where the skies are clear. Formerly, few people were around Arizona, New Mexico and such places to see the things, but now the war has increased the observers, and the observations have naturally gone up. Now the desert gets hot at

day, and cools off at night. The air cools more slowly where it doesn't touch the ground. As you go up from the ground, the air gets warmer. Then, way up there, it gets cooler again. And air in such areas of varying density, as has long been known, can act as lenses to cause *mirages!*

The saucers turn out to be images caused by lenses made of air—images probably of strings of lights on a highway in the distance, and which seem to flicker and move when there is turbulence in the air.

Daytime saucers can be explained by smoke, dust, and haze collecting in a layer where hot and cold air touch, and which can reflect the sun or other lights.

The proof of an idea is to duplicate the effects it should explain. Menzel did just that. Using a layer of benzene and a layer of acetone—optical equivalents of cold and hot air—he turned a beam of light on his tube. The light bounced around and resulted in a group of moving lights which looked like nothing so much as flying saucers!

And radar, of course, does the same thing as light under those conditions. Radar men have long known that atmospheric conditions create some weird results.

Menzel doesn't say this is the

absolute, final answer. He simply offers it as an explanation. Until a better one comes along, I'm pretty well sold. He is one man who knew about Occam's Razor, and honed it up sharp enough to strip away most of the nonsense without having to cut the whole head off to do it.

Meanwhile, of course the U.S. Air Force is back in the picture, chasing down all reports of funny flying things. The project has been reanimated under the name of Project Blue Book, with a subdivision, Project Twinkle, specializing in green fireballs. They are giving it the works—radar, sonar, telescope, special instruments used to track guided missiles, spectroscopic camera, and Flash Gordon spy rays. They'll get their greenies, dad-gummit—or so they say.

I shall be highly amused if it turns out that their overwhelming combination of super-duper scientific junk reacts in a "Horror in the Laboratory" way to *create* a flock of living, breathing, snarling flying saucers. But I guess that's too much to hope for.

It's interesting to speculate on what the top brass wants us to believe, though, after all the squelching and reviving of the idea. Maybe they're just about ready to break a bottle over the

nose of the first space station, and we're being indoctrinated psychologically for the huge shock of learning about the launching and how much tax money it's going to cost us. They're going to show us the baby soon, so they start talking about cabbages—just so we'll know there is space out there, through which things can fly, maybe.

If so, I have no particular kicks. Getting modern man ready for space is a fairly laudable project, on the whole, no matter what method they use. Besides, why kick at something already done? Bernie the Brain believes in flying saucers and flight through space, and Mars. He still can't understand how a rocket can work if there's no air up there to push against; but he *accepts* rocket travel.

I don't know. Maybe it's caused by some of Eric Frank Russell's Vitons; it figures, at that, and he met the test of predicting them ahead of their appearance. Maybe it's mirages, which makes more sense to me, and the skyboys in charge of Project Whistle Stop are just grabbing it as a handy gimmick.

But I can't tell all that to Bernie. Besides, after years of propagandizing for science fiction that failed, people have

stopped laughing at me. So now, with an opportunity to spread the doctrine, I play it solid.

"Bernie," I pontificate, "it's this way. The saucers come from other planets—lots of other planets. They're going from Thither at the edge of the galaxy to Yon at its center. Or vice versa, or so. They're in a hurry, just passing through, so they can't really stop. But when they get where they're going, they tell their friends. 'Next time you're out riding, swing by Earth and give it a gander. Funniest place you ever did see.' So their friends do, and send their friends. Naturally, they all have different kinds of ships, like we have Fords and Cadillacs, so we see all different kinds of saucers and cigars and suchlike objects. And that's all there is to it."

Bernie gives me a grateful-dog look and goes about his busi-

ness, which is ponies. Tomorrow, he'll be back for more. Then maybe I can tell him how people of the future live in disposable homes, and throw them away when they're tired of them—only they use disposal units that squirt things back through time. So the saucers are futuristic living machines on their way to the city dump back in Yesterday, seen briefly as they whiz past our time. A little complicated, but nice, I feel. I might even throw in a flying dishpan, or a flying sink with hot and cold running water, considering how dirty those saucers must get.

Anyhow, I'm happy to have Bernie around. It relieves the tedium of Project Lemon Peel, a one-man operation of my own. I spend all my nights now scanning the skies through an empty gin bottle, hoping to spot a flying Martini Pitcher.

Arthur C. Clarke has written a book, *THE EXPLORATION OF SPACE*, which is making history already. Published by Harper & Brothers, at \$3.50, it is also a current selection of The Book-of-the-Month Club. After reading it, the reason is obvious. It's one of the most interesting books yet to appear—and one of the most complete. For once, here is a book which can receive only praise—nothing requires even a mild blast. Unhesitatingly recommended! It should be on every book-shelf, since it gives the whole story of man's coming conquest of the planets!

BOOK REVIEWS

SCIENCE: Fact and Fiction

by

GEORGE O. SMITH

A few years ago at the Annual Fall Conference at Philadelphia I mentioned that one of the reasons that science-fiction was not as universally popular as it might be was due to science-fiction itself. You and I have been reading about space warps, time machines, matter transmitters, DeLameters, and other such gewgaws for so long that we slide over them easily and get on with the story. But someone who has never met a Martian face to face is likely to get lost on the first page. There is nothing so devastating as to hand a razzle-dazzler to a friend and then have the former friend pause at the end of each page to ask you what is a dianetic or how does one get the Korzybskis. You and I would wastebasket a story that stopped to explain how a rocket works, but there are a hell of a lot of people today who have the odd notion that the reason why a rocket reacts only for eight or nine minutes to get to *brennschluss* is because it must do all of its pushing while there is still air to push against. I admitted that I did not have the answer to this problem of making science-fiction palatable to both the case-hardened reader and the soft-shelled neophyte. However—

The John C. Winston Company of Philadelphia has come up with an answer. The first five science-fiction books, for sale at \$2.00 each, fill the bill nicely.

These books are of the so-called juvenile class. A "juvenile" means that the normal adult interest in sex, politics, crime, violence, backstabbing, liquor, money, and other forms of narcotics is not present. And in each case there is a central character of a boy of about seventeen enjoying the adventure. Now, in all five books the character of the youngster is rather well drawn. In my youthful reading, the young hero was not above giving the benefit of his brilliance to the older parties in the piece. But Winston's youths, while bright and agile and competent for their years, are not so crudely overdrawn. The books may be called "juvenile" but they make good reading (unless you happen to prefer Mickey Spillane!).

The science part of Winston's science-fiction is good. An attempt is made to keep it down to an understandable level, and to keep it as scientifically accurate as can be possible in science-fiction. In some of them the story is followed by a glossary that explains the terms used in

the book. The definitions are honest; no attempt is made here to play games with words. A real concept is defined; a fictional concept is explained in its fictional light.

SON OF THE STARS, by Raymond F. Jones. Rod Barron finds a crashed flying saucer from the Great Nebula in Andromeda and the only survivor is a youth of Rod Barron's age named Clonar. Rod Barron's efforts to keep Clonar out of the clutches of Military Brass and to help Clonar get in touch with his own people reflect in many ways the efforts of the youth of a generation, or two, or three, or four past to convince their elders that locomotives, automobiles, airplanes, and rockets are no longer to be scorned.

EARTHBOUND, by Milton Lesser, deals with the terminal end of a space opera (a theme that has not been very well covered anywhere before) and the adventures of Pete Hodges who computes orbits after being washed out of Spaceport Academy because of an imperfectly healed fracture of the collarbone. Because of a youthful error, Hodges gets involved with bad company and spends the rest of the book working his way out of it by computing the wrong orbit at the right time to the detriment of said bad company.

FIVE AGAINST VENUS, by Phillip Latham, according to the author who knows whereof he speaks, is an attempt to set up an authentic planetary environment, consistent with the few known facts about the planet Venus and modified only by a few discrepancies such as providing a human minimum of available water and oxygen. Bruce Robinson with parents and younger brother gets marooned on Venus where a previous explorer was spacewrecked some years before. From there on, what happens is according to what author Latham can conjure up out of the known physical and chemical environment of Venus.

MAROONED ON MARS, by Lester del Rey, is the account of the first space trip to the red planet. Chuck Svenson was Lunar-born and scheduled to go along on the first Mars-flight but was put aside on a fluke of legality. Not to be gypped, Chuck stows away on the Mars rocket. An emergency landing damages the rocket and the party is forced to repair the damage under the bizarre conditions to be found on Mars. Author del Rey did nothing at all to humanize the vicious environment of the red planet for his characters. This places Mars very high on the list of places not to be marooned on with anybody, including even your favorite pinup tomato.

(This ratio of two of five about being marooned is not a bad average. Like Robinson Crusoe and the Swiss Family Robinson, no one in his right mind would stay long enough to write an epitaph unless he were trapped there long enough to write a story!)

FIND THE FEATHERED SERPENT, by Evan Hunter, is a time travel story of a jaunt back to the Yucatan of Quetzalcoatl and Kukulcan. It is the least of the lot because it offers nothing constructively imaginative. An old theme; a character gets trapped in the past, via time-machine that conks out, while looking for a legendary character of great fame and ends up by becoming that legendary character.

Publishers seem to publish in bunches, like bananas. Having disposed of the five above, we have three from Dover worth mention.

SEVEN SCIENCE FICTION NOVELS OF H. G. WELLS, \$3.95, Dover Publications, Inc. • One thousand and fifteen pages of H. G. Wells for three ninety-five is a lot of reading matter for the dough. Complete novels: *First Men in the Moon*; *Island of Dr. Moreau*; *War of the Worlds*; *Invisible Man*; *Time Machine*; *Food of the Gods*; and *In the Days of the Comet*.

FIVE ADVENTURE NOVELS by H. Rider Haggard, \$3.95, Dover Publications, Inc. • This is another bumper-sized volume that makes other anthologies look wan and underfed by comparison. Haggard's well-known classics: *She*; *King Solomon's Mines*; *Allan Quatermain*; *Allan's Wife*; and *Maiwa's Revenge*, add up to eight hundred and twenty-one pages.

THE HEADS OF CERBERUS by Francis Stevens, Polaris Press • This is a beautiful volume, printed on quality paper, and bound with quality; boxed. There is no price-tag; the printing is held to fifteen hundred copies and sold by subscription only. The culprit in the dark glasses hiding behind the Polaris Press is none other than our old friend Lloyd Arthur Eshbach of the Fantasy Press in Reading, mentioned for the benefit of fan-collectors who should try to get into the act. The story is a parallel-time-track idea, varied by a new (and not illogical) twist that the time-tracks proceed at different time-rates.

In the non-fiction department this issue we have two books, making up for last time, when we had none. One of these is brand new about an old subject; the other is older, revised, about a new subject:

LANDS BEYOND by L. Sprague de Camp and Willy Ley, \$4.75, Rinehart & Co. • Many of the myths, legends, and tall tales of yestercenury are studied and discussed, with the idea in mind of establishing their truth and origin in the light of modern knowledge. No one really believes that Odysseus met a character called the Cyclops who had but one eye in the middle of his forehead, but from some hidden origin the idea came. Was Atlantis completely a fiction or was there some basis in fact? And from what incomprehensible source came the story of men whose heads were down in their chests? These quaint notions must have started somehow, and the chances seem high that the origin of many of the fantastic goings-on came from misinterpretations of the truth.

Messrs. de Camp and Ley have pooled their extensive studies of the old old tales, and then have applied their abilities of interpretation. Scylla can be reduced to a monstrous octopus, and Charybdis is no more than a whirlpool; Atlantis may never have existed as we read about it, but—

The result of *Lands Beyond* is a book good for the younger and more impressionable to read because it reduces to the realm of practicality many of the fabulous mysteries of the past, thus stripping the glamorous Long-Ago of its false superiority.

THE RESTLESS UNIVERSE by Max Born, \$3.95, Dover Publications, Inc. • This book was written in 1936 and revised slightly for republication. People who have been pursuing the latest developments in science without a background of the older discoveries will find that *The Restless Universe* fills in their sketchy background in an interesting way. One of the most interesting features of this volume are the thousands of pictures printed in the margin; when the pages are riffled swiftly, the diagrams move, demonstrating wave motion, molecular dispersion, orbital precession, and a lot of other moving factors which are difficult to describe in mere words.

So with the following note for the Department of Snafu, we are wound up:

It is the practice of Public Libraries to list books under the real name of the author. Thus, in their search for literary honesty, *Tom Sawyer* by Mark Twain is listed under Samuel Clemens; *Needle* by Hal Clement is listed under Harry Stubbs, and so forth.

So when I find *Seetee Ship* listed under Will Stewart it provides me with great pleasure to realize that I know something that the New York Public Library does not.

Anybody seen Jack Williamson lately?

THE BIG CONVENTION

BY LESTER DEL REY

A report on the Tenth Anniversary World
Science Fiction Convention in Chicago

Chicago did it. The city put on the biggest and one of the best Science Fiction Conventions of all time. If I sound a little breathless, it's because I still haven't recovered from the series of pleasant shocks that began the moment I walked into the Hotel Morrison the first day and found registration so heavy that even that huge hotel was swamped.

Nearly eleven hundred people registered with the Convention Committee—twice as many as attended any other convention—and there were more who never got around to the formality of signing in. I'd say that at least fifteen hundred readers, writers, editors, fans, and other professionals were present. I'm positive that every one of them loved every minute of it.

The convention began Saturday afternoon, August 30, with a welcome and an introduction of notables handled by Melvin Korshak, that could only skim the surface. Then it broke up to give everyone a chance to meet everyone else. I was lucky enough to corner Burr Tilstrom, creator of *Kukla, Fran and Ollie*, who confirmed my suspicion that Beulah Witch was flying around somewhere, and who promised (and later delivered) a great deal of publicity for the convention on his program the next day.

In the evening, Dr. Joseph A. Winter delivered an address on thinking in men and machines, and Dr. H. J. Muller (Nobel Laureate for 1946) talked on life elsewhere and elsewhen. The high spot, though, was a good-natured but heated argument between Willy Ley and Ray Palmer on the flying saucers. With official business over, the huge, tiered Terrace Casino emptied, and the parties began—the real business of any convention, obviously, where the sole object of a good time was more than properly achieved! There were two huge parties going on—the official open house and a packed penthouse party being given by the Elves, Gnomes and Little Men's Science Fiction, Chowder and Marching Society of Berkeley, California, who were putting in a bid for the next convention to be held in San Francisco. Both parties were wild, crowded, happy, and ebullient! And the smaller parties throughout the hotel which followed were perhaps even more so.

Sunday morning was devoted to meetings of the various organiza-

tions and fan clubs, and the afternoon was given over to the auction which helps pay for these affairs and to a discussion of the magazines by a panel of editors, with questions from anyone on the floor. If I got a bit heated on the subject of detective stories in science fiction magazines, I don't apologize; but I had a fine time, and I'm sure Tony Boucher, Howard Browne, John Campbell, Evelyn Gold, Bill Hamling, Sam Mines, Ray Palmer and James Quinn enjoyed it as much as they seemed to.

The evening banquet was probably the high spot of the whole convention. The food was good, which is always a pleasant shock; the waiter we had gave us excellent service, particularly after Willy Ley began translating all our orders into German. And the program was outstanding. Hugo Gernsback, official guest of honor, discussed science in science fiction, placing himself at the mercy of questions from the floor.

Then Robert Bloch, science fiction's finest master of ceremonies, took over to present speeches by L. Sprague de Camp, Edward E. Smith, Ph.D., Clifford Simak, and Walter A. Willis. Willis, incidentally, was brought all the way from Ireland by contributions from the fans—a thoroughly worthwhile project, judging by what little we saw of Mr. Willis!

After that broke up, there was a masquerade, given by the Little Men. It was amazing how many came in costume. Mixed with the punch and dancing was a judging of costumes. Virginia Saari won first place—an uncommonly pretty gal in a highly ingenious space costume! In our opinion, honorable mention also belongs to Evelyn Gold, who contributed no end of sparkle to the occasion!

After that, the evening gets a bit blurred, if you follow us. But I hope that all the other parties were as good as the one that grew up by itself in our suite. Willy Ley, George O. Smith, Philip Jose Farmer and wife, Randall Garrett, most of the Convention Committee, David Kyle, Martin Greenberg, and we can't count how many others not only kept things humming but even cleaned up the joint before they left. (Special thanks to Andy Harris!) We'd like to recommend that the parodies in verse by Charles Tanner should be recorded permanently, incidentally; they wowed all who heard them!

Monday was almost too busy a day, but definitely not a let-down! Harlan Ellison, Bill Venable, Oscar C. Brauner, Ph.D., John W. Campbell, Jr., and Hans Stefan Santesson gave a nicely varied group of speeches, and there was a debate on the value of fandom by E. Everett Evans, Lester Cole, Walter A. Willis, and Edward Wood, with Sam Moskowitz moderating.

The afternoon got under way with a panel of the book publishers—

August Derleth, Lloyd Eshbach, Martin Greenberg, Melvin Korshak, David A. Kyle, and James A. Williams, with questions from the floor. There were speeches on the lighter side—some of them more than slightly terrific—by Robert Bloch, John H. Pomeroy, Ph.D., and Irvin Heyne. Then came the big annual battle over who should get the convention for 1953.

It was a gr-r-rand battle, and we loved every minute of it, even though the suspense lasted without let-up for two hours beyond the normal time-limit. Indianapolis, San Francisco, and Philadelphia were the big three, this time. Philadelphia finally won by a good margin on the third ballot. And in our opinion, the yeoman work of David Kyle beforehand, and his well-timed switch of the votes he had won by his efforts from New York to Philadelphia were the deciding factor. It will be Philadelphia in '53. But I'm sure that the fine campaigning of the Little Men and their good sportsmanship over their loss should entitle them to victory for the next site, and I think everyone left the fracas with the same idea.

The evening session saw an address by Bob Tucker and a performance by Ted Sturgeon on the Monster—a twelve-string guitar! There was an amazingly good ballet about a guy stranded on an asteroid with two e. t. gals. Garry Davis and Harry Harrison put on the funniest skit of the convention, in our opinion, when they split the atom and found it tickled! And when we finally had to leave, the fans were still yelling for more showings of *Tales of Tomorrow* TV films—and getting them.

We have unquestionably left out far more than we've been able to include in this brief report, since nobody could begin to cover everything that happened. There was the pleasure of meeting Mack Reynolds and August Derleth for the first time; the sight of Dr. C. L. Barrett steadily walking up and down the stairs for his prizes at the auction; the elevator that got lost without an operator; and the meeting of old friends from everywhere. The only sad part of it was that it had to come to an end.

A first-rate clambake, all in all. The publicity in the papers and in all other media was excellent, and the results of this convention should do a lot to help the increasingly fine regard with which science-fiction is met today. Special bows go to Julian C. May, Bea Mahaffey, Ted Dikty, William and Frances Hamling, Melvin and Irene Korshak, Mark and Diane Reinsberg, and Oliver and Virginia Saari. They managed to take care of an attendance twice as large as expected, and make it seem as if they'd known what it would be all along. That's no mean task. They also managed to seem as happy and unruffled as if they were just other fans enjoying the show. That's impossible—and it's also probably why the whole affair was one big happy occasion. We thank them from the bottom of our over-strained heart!

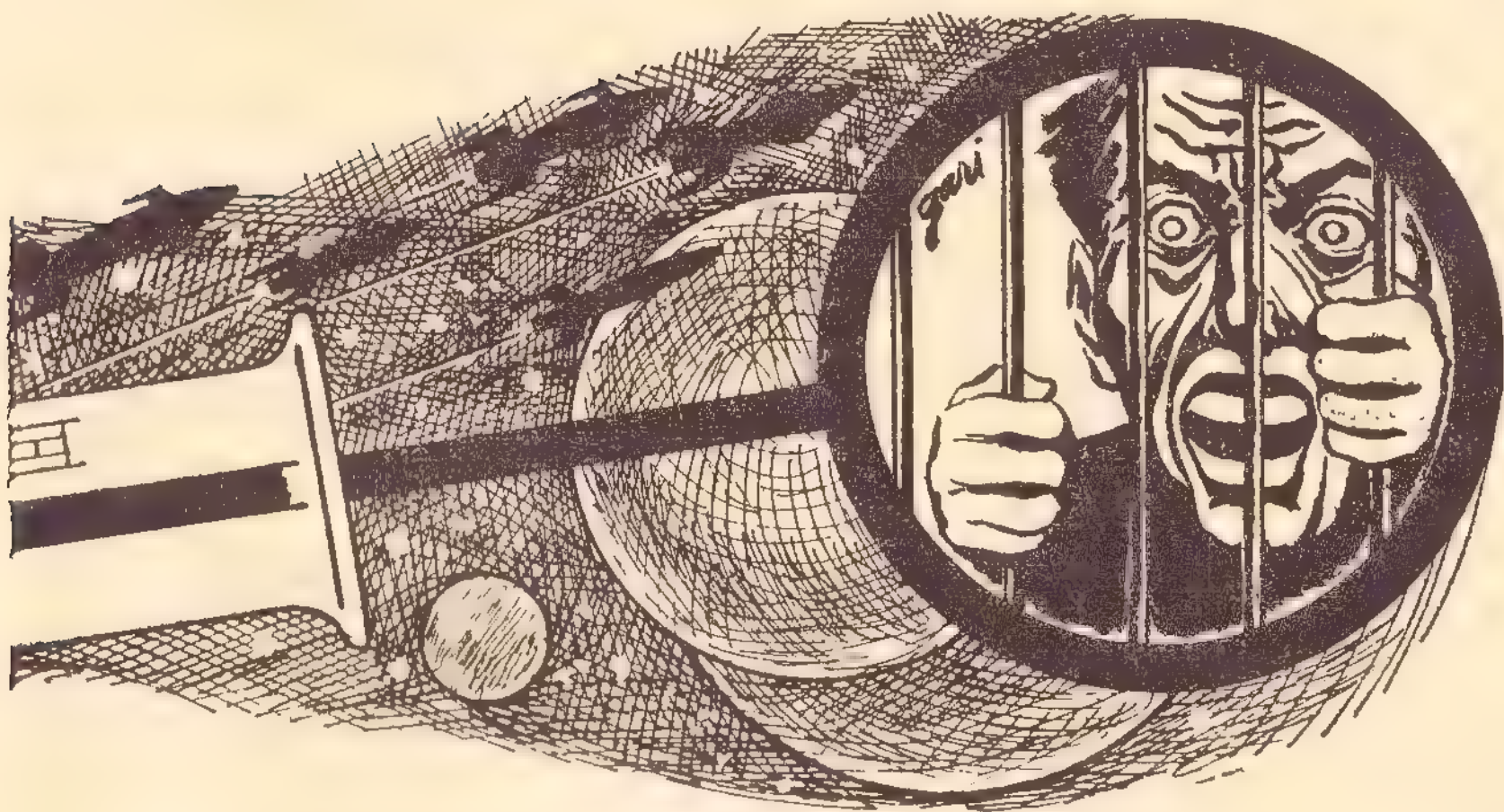


HERO'S WAY

BY JUDITH MERRIL

ILLUSTRATED BY GARI

The graduates naturally wanted to go out fearlessly through the brave new worlds of space. They could imagine being heroes and coming back to the cheering of Earth and heroes' rewards. Yeah, heroes' rewards.



One hundred and forty-seven graduates this time. Seven score, and seven left over. Twelve dozen, and three more. Go on, find another way to count it. Count the hairs off your head this year, or the ones that turned gray. Count the cost of books and paper and lab equipment. Count their ages and their families and their average incomes, and all the other statistics the office of Space Information gathers up so neatly.

Count them any way you want, only don't count how many years they have to live, how long they'll be healthy, how many trips they'll make. Don't count the kids they may never have, or the families they'll leave behind. Don't even try to count the pretty picture hats out there in front, because you'll find yourself trying to count tears instead . . . the tears the girls sitting under the pretty hats haven't shed yet.

You can't count tomorrow's tears. No, but you can count those hundred and forty-seven men, one by one, slow as death and sad as sickness. You can count each one as he comes up looking awed and eager in his new fitted grays, with the stripes on the sleeve. You can hand him his diploma, and watch the pile on the table go down, slowly, slowly, much too slowly. And before the next set of grays comes

up, one inch shorter than the last and red-topped instead of black, you have too much time to remember that there's a man inside the uniform, a man you know, a man you've watched and taught and brooded over for five years in the Academy.

How can you count a human life? Do you give it a number, *one or one hundred and forty-seven*, according to grades and rank acquired in five years' time? All you can do is keep on handing out diplomas and doom until you reach the bottom of the pile and the table is empty, and the last gray uniform, blonde-topped, six-feet one-inch, age 23, has filed past.

The fourth Commencement was over at Spaceways, the official part at least. Even in four years, customs grow up though, and the teevee stayed with it for another hour while the boys kissed the girls and hugged their mothers and shook their fathers' hands, and while they all sang space songs around the rocket memorial.

Then the teevee cut off, and switched back to commercial shows. Technicians supervised the removal of the big scanners from the campus. Mothers and fathers went home to make preparations for the evening parties. Girl friends, one by one, reluc-

tantly, took leave to go back to their hotel rooms and dress for the evening. Then a hundred and forty-seven men in fitted new grays, with stripes on their sleeves and diplomas in their hands, filed into the Chapel for a final farewell from the chief.

Alex Halder stood behind the rostrum and waited, erect as befitted his Brigadier's rank, patient as was required by his headmastership. He watched them come in, and found it impossible to think of them any longer as a class, a group, a quantitative category. He knew them, each of them, almost too well. And this would be his last chance to speak to them before they made, each for himself, a final and terrible decision.

At last they were all there, standing stiffly at attention next to their chairs, the doors firmly closed to the outside world.

"All right, boys," Alex Halder said. "At ease."

There was a murmur from the group, of surprise, of curiosity, but they all still stood. Halder smiled. They'd been expecting something ceremonious, official, brisk.

"At ease," he repeated. "Sit down. You're going to be here for a while. Get yourselves comfortable. Take your jackets off, or light a cigarette, or anything you feel like. The shouting's all

over now. Nobody's watching you. Or me. And temporarily at least I don't even outrank you. You've got your diplomas. You're out of Academy. And you don't get to sign up for Service till Chapel is over."

They began to settle down. The room hummed and rustled with whispers and adjustments.

"You never even thought of that, did you? Well, think of it now. You're free, every one of you. You've got just about exactly twenty minutes before you walk out of here, and that's all the time you've got to decide what you want to do with the rest of your lives. I know, it probably never even occurred to you that you'd have twenty minutes. You figured it was all set up.

"It is, in a way. When you go out those doors, you're on the air again. You've all seen this from the other end. You watched it on teevee for three years. When you go out, the table will be set up and waiting, and the scanner'll be watching you, and the chances are no matter what you think you ought to do, you'll walk over to the table and sign up. But according to the law that set up at the Academy, all we can do here is give you an education. We can't force you to use it any special way. So you get to have a couple of hours be-

tween graduation and induction, to change your minds.

"You get more than that. You get this twenty minutes now, not because the law requires it, but because Alex Halder, whatever you may have thought for the last five years, is a human being as well as a Brigadier-General. You men are in the fourth graduating class of the Academy. I've made this speech, or one like it, to each of the three classes that went before you. I'll make one like it every year as long as I'm in command here.

"I want to tell you some of the facts of life they left out of the Academy curriculum. And remember, in back there, you're only going to hear this once, so you better listen while you can."

The murmuring in the back rows stopped.

Halder hesitated. "You know—I told you—this is the fourth time I've given this speech, and the toughest part of it is that I never got bored with it—because every year I've got a new story to tell.

"This year it's about a man you all know, or at least know of. His name is Willard Adamson, and in case you've forgotten—I see you haven't," he said brusquely. "All right, when you're ready, I'll go on."

Again, the noise subsided.

"Bill's served two months of his sentence so far—his jail sentence, I mean. He's got nine years and ten months of it left to go, and it's that short only because he's Bill Adamson, after all. But I don't think it matters much to Bill. He's served eleven years of a different kind of sentence already, and this one is a life term.

"You probably remember how high and righteous the teevee commentators got during the trial. They all thought it was shocking for a hero of the spaceways to fall so low. They said it was a bad example to all the kids who worshipped Bill Adamson.

"Well, it was. It was a bad example maybe some of you men can profit by. But it wasn't shocking, at least not to anybody who's been in the Service more than a couple of years. I don't mean to say, for a minute, that I'm condoning drug-peddling or even drug-taking. I'm not building up to a sentimental white-wash of good old Bill. But I wasn't shocked when it happened. I wasn't surprised and neither was any other senior Serviceman. Most of the others who went sour haven't been anywhere near as spectacular as Bill, but a lot of them have gone the same way before. It didn't have

to be dope. Liquor, women, the big rackets and the little ones . . .

"All right, that's enough build-up. I'm going to tell you some things about Bill that were never in the papers or on teevee either and probably won't be. Not for a long time to come anyhow. I can tell it now, because it was just this last year—a few weeks, that's all, before they raided Bill's place and caught him with the goods—that we licked the problem. If any of you here go out and shoot your mouths off, it won't matter to the Government any more. Only to Bill. As an old friend of his, I'm asking you now not to repeat what I tell you. But there's no law against it . . . now."

Again he hesitated. Where do you start with a story like that? He'd been stalling, and the men out there knew it as well as he did. All right, start at the beginning, stall a little more, but just tell it straight through.

"Bill Adamson," he said pedantically, as if he were delivering a classroom lecture of Service history, "was not really the first man to go to the moon. He was the first man to land a rocket on the moon and take off again. He was the first man to take a ship designed for X-12 fuel outside Earth's atmosphere.

"The funny thing is, Bill was no hero. He didn't even want to make that trip. He was a volunteer, sure. Everybody in the Service is a volunteer, and no Serviceman ever has to take on an assignment of special danger unless he volunteers. You'll find out all about it the day some bright-eyed Colonel full of bright ideas asks you coyly whether, in view of your exceptional qualifications for the job, you would like to volunteer for a given mission. I speak with authority, because I was the Colonel who put it up to Adamson."

They were silent in the back row now. The chief was really talking; whatever this was all about, it was coming out now.

"The thing for you men to remember, right now, and later on if you do sign up, is that any time at all you have a perfect right to say 'No, thanks,' and go on about your business. Believe me, nobody who's been in a while will think the less of you for it!

"As a matter of fact, that's what Bill did. He said no when I asked him, but I wouldn't listen then. We needed him. I put on all the pressure I thought I ought to, and I told him to take twenty-four hours and think it over.

"He said the answer was still no, and would be in twenty-four

hours. I told him to come back and say it again. I knew a little more about Bill just then than he did himself.

"He had a girl. I'd met her, and I knew the type. She was a bit-player on teevee at the time, smart, ambitious, loaded with looks, and enough talent to get along. Quite a dish, but not what you'd call the understanding type. She was *crazy* about space-men.

"Yeah, I know, you still get plenty of it. But think back eleven - twelve` years. There weren't many of us who had licenses in those days. The Service was new; the Academy wasn't even opened yet. And here was Bill Adamson, just a kid—if you'll pardon my saying so—no older than any of you, and he'd been offered a chance to be the first man to land on the moon and have a look around.

"Naturally, he told his girl about it. Naturally, he figured she'd be glad he turned it down. She loved him, it says here, so she wouldn't want him to take a risk like that. New fuel, new ship, untried out of atmosphere. Hell, he didn't know if the setup would hold together half-way there.

"Like I said, I knew more about that girl than Bill did. First she thought he was kidding when he said he was going

to turn it down. Then she began to realize he meant it, and she argued with him. He just kept patiently explaining that he liked living, especially with her in his life. So she threatened him and bribed him. He owed it to his country, she said, and he owed it to mankind, to take the trip. If he was too much of a coward to do his duty, he wasn't the man for her; that was the threat.

"On the other hand, she pointed out, if he went, why they could get married right away. They'd have a few weeks together whatever happened.

"Up till then, you see, Bill had been begging her to get married, and she'd been holding off. She had her career to think about. She wanted to stay single till she established herself. Bill admitted to me later, when he told me about all this, that he had a sneaking notion that he had over-talked the dangers—that maybe she was so sure he wouldn't live through it, that she was willing to marry him just because it wouldn't last long.

"But of course he knew that was an unworthy thought. She had such high ideals of devotion to mankind, she was willing to sacrifice her own principles as well as Bill's life. Anyhow, he pushed all his unworthy suspi-

cions out of his mind and came back and told me the next day that he'd go. They got married on special license the same day.

"Bill got three weeks leave, and the time of his life. The two of them were together all the time, at one big blowout after another. The world couldn't do enough for Bill Adamson. Or for the girl who married him.

"All that time it never once occurred to him how much she was getting out of the deal, or what her high principles really added up to, in cash terms, for her. When she signed two big-money teevee contracts within the three weeks, he was bewilderedly grateful, because he didn't have to worry about her now, in case anything happened to him.

"The happy daze lasted right up to the takeoff. He blasted off in a blaze of glory, and he made it all right. He spent two days on the moon all by his lonesome, taking pictures and looking around, filling little jars and bottles with samples of this and that, and making all the tests the Science Service boys wanted. Then he took off again, with no trouble at all, and got back all in one piece, hungry, thirsty, a little cramped in the muscles, and otherwise feeling fine.

"Maybe some of you remember the big welcome home he got?

You're all old enough to remember . . ."

Halder looked around the big dim room, and found nods and smiles answering him. It had been one bang-up celebration, the kind of thing no kid with his heart set on the spaceways was likely to forget.

"You remember Bill went on a world tour, and he was on teevee half the time, one show or another? A lot of the time she was with him . . . his wife, I mean. You may not have noticed her at the time, but you would have if you were a few years older. I did.

"Anyhow, all that happened, or began to happen, about five days after he got back. Before they let loose for any kind of welcoming, the medics went over that boy with a fine-tooth comb. They weren't taking any chances on new bugs or, for Bill's sake, on new sensitivities either.

"They made all kinds of tests on him, took samples of everything he had, and even after they let him loose, they kept on running tests. It was almost as if they had their minds made up not to stop till they got some bad news.

"Well, they got it."

He paused, and the silence in the room was a waiting, breathing thing.

"After they got it," he said tiredly, "they checked and double-checked. They made absolutely sure before they told him anything at all. When they got around to telling him, there was no doubt whatsoever. He had to believe it.

"He had to believe it, and he had to go tell his girl—his wife—about it. That was when she made the first mistake she ever made with Bill, and the last one she ever had a chance to make. She said she didn't care. It was the truth, too. She was glad, really, because it meant she didn't have to worry about being pregnant. She could concentrate on her career.

"That was the joker. It took that one crack too many to make Bill see what a mutt he'd latched onto. That was when he began to put two and two together, and figured out why she wanted him to go in the first place.

"He walked out, but he never bothered about a divorce. Later on, when she wanted one, he was just mean enough to put a little trouble in her way. Bill was a pretty normal average kind of guy. He wanted a wife and kids and a home. He'd always figured on having that after he got out of Service. Now he was out, and a hero, and he had lots of dough—but he could never marry the kind of wife he wanted, because

he never could have any kids.

"Sure, I know—lots of people can't have kids. They get married anyhow, they adopt kids. They find some way around it. But Bill couldn't do that. He couldn't talk, you see.

"He might have found the right kind of girl. Only if he did he'd have to level with her before anything got serious—and he couldn't. He was a bloomin' hero, even if he hated it and never wanted to be one. And the Government wanted good publicity for the Service, not bad. They were just building it up; they were opening up the Academy. They made it pretty clear to him just how a little word-of-mouth gossip about a case like his could wreck the whole project. Things like that get around fast.

"He never did talk. And I guess he saw to it the girl kept quiet too, because she never peeped. It doesn't matter now; they finally licked it, just last year. Licked it for good, I mean. That's when they dropped the double-armor-and-dome protection at Moon Base. You can go out there now in standard space-gear and walk around just like Bill did. And still come home and have kids."

They were getting restless, and his time was almost up. He couldn't talk for more than

twenty minutes.

"All right," he said, quietly, "That's my story for this year. But you want to remember, it's just the one for *this* year. I have my pick of new ones every June.

"The Service is pretty damn good when you come right down to it. Thorough, efficient. It can keep a secret like Bill's for eleven years, and it can make sure everybody who comes after a guy like Bill is protected, like they did on the Moon. But the one thing they can't do is see what kind of trouble is coming up ahead.

"We've licked a lot of problems so far—but just a few compared to what's coming up. One of you men may be the first to set foot on Jupiter, and frankly—"

His voice was getting fainter. He paused and said as loudly as he could, "I don't wish it on any of you!"

They were fiddling with their jackets, straightening their ties. He had to wind up anyway.

"All right. That's about it. But when you go out that door to the big table, and to the teevee scanners that'll tell the whole world if you don't sign up, remember this:

"Whatever trouble you run into, you can get to be a hero like Bill—provided you look okay when you come home. But what-

ever trouble you come home with, you can't get any sympathy for it. And if you come back with your bones busted or a hole in your head, the chances are they'll just decide you're not fit for public display.

"The Service *has* to come first.

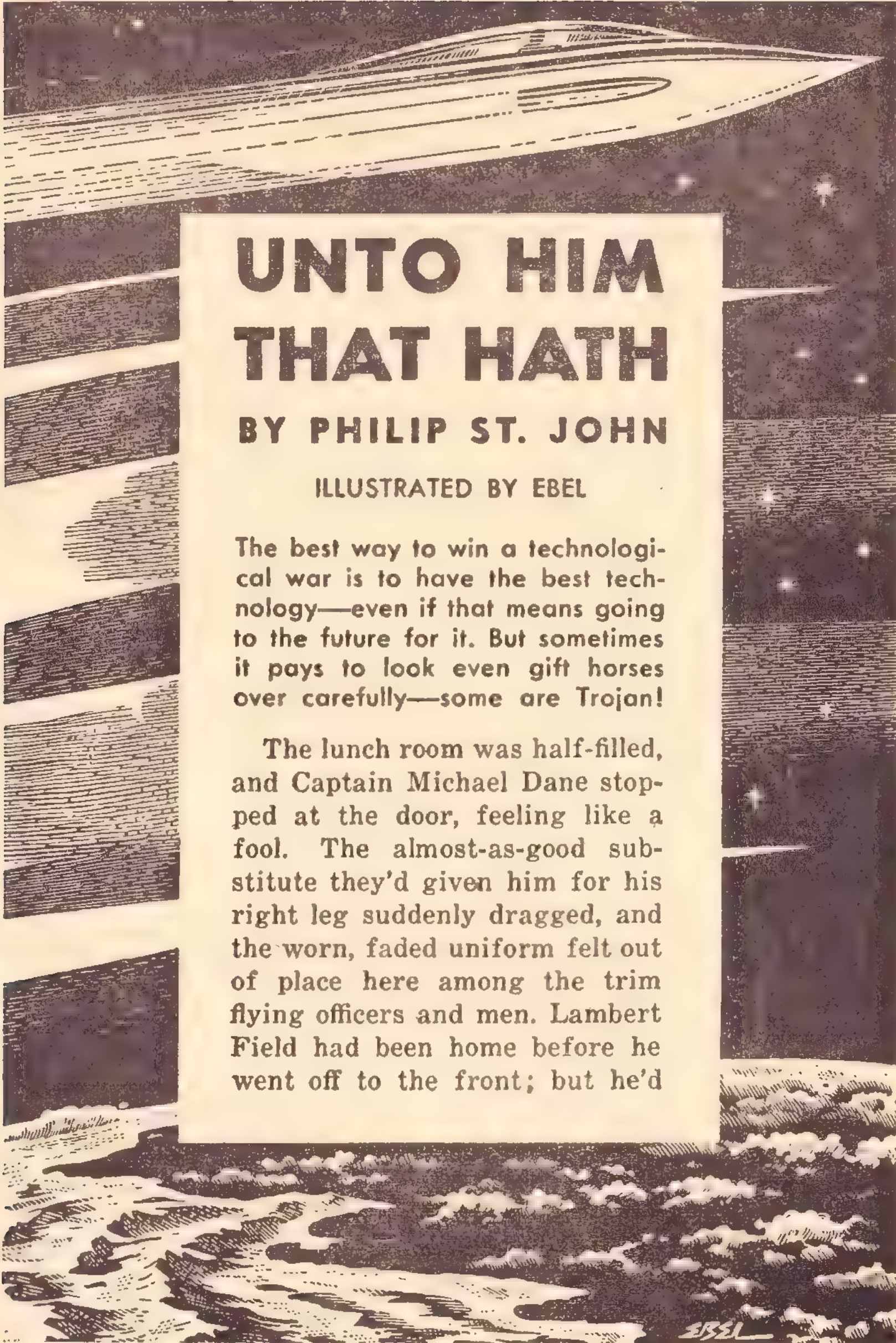
"All right, that's all," he said very faintly. But they heard him. They were pushing through the door already, one hundred and forty-seven of them in new fitted greys with stripes on their sleeves, every last one of them fighting to be first on line at the table.

"And I hope none of you turn out to be heroes," Alex Halder said sadly.

But none of them heard, not even the ones who were still in the room. He'd been carried away when he started to talk about Bill; he'd used up extra words and extra minutes. His voice wasn't working any more.

Alex Halder was one of the lucky ones. There were four of them on the Venus expedition, and all they lost was the use of their natural built-in talking equipment. But a problem like that was nothing to the Space Service medics. Brigadier-General Halder would manage all right; all he needed was a new charge for his batteries.





UNTO HIM THAT HATH

BY PHILIP ST. JOHN

ILLUSTRATED BY EBEL

The best way to win a technological war is to have the best technology—even if that means going to the future for it. But sometimes it pays to look even gift horses over carefully—some are Trojan!

The lunch room was half-filled, and Captain Michael Dane stopped at the door, feeling like a fool. The almost-as-good substitute they'd given him for his right leg suddenly dragged, and the worn, faded uniform felt out of place here among the trim flying officers and men. Lambert Field had been home before he went off to the front; but he'd

been whole and in fashion then.

Now he was attracting attention by just standing there. He moved up to the counter, selecting the old seat at the end. He sank down tiredly. There had been too many planes, too many flights, too long a time in the hospital, and now too much mystery and haste in getting him back.

"Coffee—just coffee," he ordered as a waitress came up to him. "Black and hot." He shouldn't have come into the place; it was silly to expect things to stay the same while he was gone—stupid to waste time on a whim, when he should have been reporting to the Dane Aircraft buildings down at the end of the field.

The coffee was suddenly in front of him, and he reached for it. But a hand was in his way. "Still three lumps, Mike?"

He looked up at that. Molly was four years older, but those years had done well by her. She'd filled out a bit, and had learned to use her brown hair as a setting for her oval face, instead of looking like a tousled tomboy. Now she lifted the end of the counter and came around to sit beside him. There were no rings on the left hand she dropped over his. "Been a long time, Mike—too long for no letters."

He pretended not to hear the

last. There was nothing he could say. He'd told her he wouldn't write and wouldn't let her be tied down to a man who might not come back. He'd kept his word. Now he shrugged, and turned his palm up to meet hers. "Too long, kid. I thought you'd be in school, instead of here."

"I'm helping out while I'm back. Be here a few weeks before the position I took with Caltech is ready for me."

"Caltech?" He shook his head in admiration. "I suppose that means you're a Ph.D. physicist now, with gravity all figured out, and fields doing dances at your whim. You promised you'd let me see your doctorate thesis."

She grimaced. "Not when they mark it Ultra Top Secret. But you'll see it on the planes one of these days. I found something—a whole new field of physics. I told you I would, and I did . . . How's it feel to be back?"

"Lousy." He jerked his thumb back toward a table where a pink-faced major was declaiming on how they *had* to dig out their H-Bombs and use them against Pan-Asia. Dane had heard little else since he'd been back, and there was no way of convincing the natural fools that it would be world suicide. Somehow, up to now both sides had managed to avoid turning it into an all-out fatal atomic war.

Pan-Asia was afraid the American Alliance had too many such bombs for them, and the Alliance knew how little it could do with bombs against the decentralized enemy, whose one great manufacturing center had somehow remained undiscoverable. But the Alliance was losing, now. In five grinding years of technological warfare, the despised Pan-Asians had proved themselves technologically modern, and with heavier manpower. The Alliance had been retreating across the Dnieper when Mike was wounded, and were now fighting a slow retreat through central Europe. And the fools here were braying for their favorite horror weapon, to kill off everyone!

Then Mike shrugged and tightened his grip on Molly's hand. "And good," he added. "How's Dad?"

She shook her head uneasily. "I've barely seen him, Mike. He looks happy in a feverish way—and worried. And he wants you back, pretty badly. Something funny is going on, and everything's wrapped tight in a blanket of hush-hush. You'd better report in—but come back, Mike!"

Mike nodded and got up to leave, glad to get away from the smug stupidity of the major who thought he could end war

by using something so ugly neither side had dared to touch it. He'd probably been one of the fools who had once thought they could lick Pan-Asia with a single hand, because everyone knew the enemy didn't have the Alliance's technical know-how. Some would never learn better, though the Pan-Asian jets and tanks were rolling forward month by month.

Mike went down the walk, and the weariness was heavier in him. His leg ached, and the toes he no longer had felt cramped. He caught himself limping, and forced himself to stop that. It was only habit; the prosthetic device was completely serviceable. He could even tap-dance with it, if he'd been of a mind to try it.

The Dane Aircraft buildings had spread since he had seen them. They now occupied the whole end of the field, and spread out, enclosing a small helicopter field of their own. He should have guessed it. His father had always been a whizz when he really tried, and the Dane planes had been the only ones to consistently meet the best that Pan-Asia could throw at them.

A guard snapped up smartly. "Halt! Captain, this is restricted. You'll have to get a pass."

"Don't be a damned fool," Mike told him, with the military

formality typical on the real front. "Crank your little phone and tell Dane or Enright that Mike's reporting in."

The guard gulped, unused to facing men who were bored by the authority of a gun. He fumbled, and half-turned toward his box. But before he could reach it, a heavy baritone let out a yell. Enright hadn't changed. He was still a small man, with shoulders that were too big for him, and a wild mop of black hair that fell across his steel-rimmed glasses. Now he came running out, rubbing grease off his hands against his coveralls. Mike noticed there were oak-leaves on his collar. But there was nothing military about him.

He came up, sticking out a calloused hand. "Mike, we've been waiting for you for hours! What happened?"

"A general overrode my priority—claimed he had a sick baby here. So I hitched with a supply ship." Enright had been foreman since Mike could first remember. Mike thumped him on the back, and snapped his finger against the insignia. "Brass!"

Enright seemed embarrassed, but he grinned. "Needed them here. Anybody who can use a wrench on anything half secret gets drafted as an officer. I hear they've got eagles waiting for you. You're looking good, Mike!"

Mike knew it was a lie, but he grinned politely. "Thanks. What's it all about, anyhow? I can guess that Dad wanted me back as soon as I was off the active lists. But why the big fuss about rushing me here, getting me secrecy clearance, and everything else?"

"Big times, I guess," Enright answered, and his voice was a little bitter. "I know your father and Custer have some super-doooper plan on called Project Swipe, but I don't know what it's all about. Anyhow, the Dane works are big enough for your father to throw his weight around now, so maybe he just felt like doing that."

They were back in the first hangar Dane Aircraft had used for its original plant. Now it seemed to be the experimental building and administration offices. Enright led back through a maze of elaborate machinery. "Built the first atomic athodyd right here," he said. "Now we're supposed to be finished with development on the robots, and everything's laid off until Project Swipe comes through."

The athodyds were a bitter memory; they'd been developed by Mike's father and one of the leading nuclear physicists, and should have given the Alliance the complete air mastery, re-

placing the jets with a much more powerful drive. But somehow, the Pan-Asians had managed to get the secret in advance, and it had been all the more in their favor. They'd never found the spy, either. He knew very little of robots, beyond the fact that they were a fantastically improved version of the automatic pilot and bomb-sight combined.

There were rumors that Pan-Asia already had a model of it.

They went back through the silent hangar toward the offices built at the rear. Then Mike caught sight of his father's back, and he mounted the few steps more briskly. Dane was bent over a complicated chart, pointing out to a man wearing soiled fatigues and an Air Force cap with two stars on it.

He swung around at the sound of Mike's steps. "Hi, Mike! Let's have a look at you . . . and you look rotten, boy. Should have pulled you back before they made a useless wreck of you."

But his face flicked from worry to the old smile Mike remembered, and his handshake was hard and eager. After all the false pleasantness, his words were pure relief. The gray in big Bruce Dane's hair had spread a bit, and there were new lines in his face, but he looked about the same as Mike remembered

him. Then he turned quickly.

"General Custer, this is my son, Mike. You two know about each other."

Mike found the other's hand-clasp almost like his father's, and his liking for the general was instantaneous. Custer had been head of an engineering department at one of the major colleges until he was drafted into a commission. He'd gone up rapidly, then, but he'd still considered himself a scientist, rather than a big brass. His somewhat heavy body had none of the false erectness of a typical military attempt at pretending first-class condition, and the grin on his sharp-featured face met Mike's eyes without hesitating over the fact he was a mere captain.

"Hi, Mike. They call me Bob around here. We thought you were going to miss Project Swipe." At the mention, worry touched his face, as it did that of Mike's father. He swung to the older man. "Bruce, I still wish you'd let me take it."

"Not a chance. Who's idea was it, anyhow? Mike, remember those arguments we used to have? Over those magazine stories you started me reading?"

"The fantasy ones, you mean?" Mike asked, and a touch of a smile began on his face. His father had always detested

the use of that name for them, insisting that anything men who believed in science could do, other men would do.

"Fantasy, hell! That atomic athodyd will take us right into the era of space flight, once we get this war out of the way. And we'll be building robots here in a month— maybe not quite like men, but able to *think*. I got you back here to show you you've lost your bet— Bob and I've proved the stuff isn't fantasy!"

"There's still time travel," Mike told him. He grinned slowly, and felt a touch of bitterness against the two rise in spite of it. While he'd been fighting a war, they'd been playing with the ideas in the magazines, apparently. Maybe they'd done their share, but it sounded like a game, rather than serious business.

His father had passed across a gadget, and he took it, surprised at its lightness. "It's a tool," Custer explained. "Must be—though we haven't figured out what it's for. Looks like a wrench, but no nut ever looked like that. Try to break it."

Mike tried, and gasped. It looked and felt fragile enough to be ruined by a child, but he couldn't bend it. He frowned and handed it back. "So?"

"From the future," his father

told him. Then he gathered up his equipment—charts and a huge old pipe—and headed back towards a heavy door at the far end of the hangar. "This time, I'm going to give it full power, Bob. You two keep your eyes on the catcher."

The door opened, revealing a room beyond, but it shut almost at once. While it was opened, a high whine of dynamos had come in. General Custer pulled Mike to the side, where a heavy window was covered by a shutter. He threw back the shutter, and pointed.

The big interior of the building was without other openings. At the near end, Mike saw four big gas turbines driving generators, leading into what seemed to be gigantic oil capacitors, and a small control board connected to them. Beyond, he could see only a grid of silver bars at the ceiling and on the floor, opposed to each other.

"What nonsense. . .?" he began.

Custer shook his head. "No nonsense, Mike. Bruce and I got an idea, and tried it out on a small scale. The government was convinced enough to finance Project Swipe, so it can't be too crazy. We're actually reaching into the future. Look, we're losing the war—we know that. Pan-Asia is matching our tech-

nology and beating our manpower. But somewhere ahead, they've got things that Pan-Asia can't have—and we're going to get some of that. The wrench came from a small trial run with the machine . . . And this time, the two of us—and now you—are the only ones who know what's going on, so Pan-Asia won't get it!"

"So you get a bunch of junk from the future," Mike began.

Custer shook his head. "Not if your father's right. He thinks this works best where there's a big explosion of some kind—loosens the time fabric, or something. That should give us at least something technical, where we can rob ideas. Watch—power's about up!"

The controls were being tested carefully by Bruce Dane, and the man nodded. He began to move them carefully, according to his chart. Finally, he threw a switch. Above the banks of capacitors, a huge relay switched down. Even outside, there was a peculiar strain, and the air between the two big silver grids seemed to crackle with invisible fury.

Something began to form there. At first it seemed far away and tenuous. Then, without seeming to move, it yet appeared to rush in and grow. A corona of bluish fire sprang up around

it, and then vanished.

Bruce Dane was working frantically at the control-board, and now he seemed to be driven by sudden desperation. His hands shot out toward the big switch—

Something wrenched at the bank of capacitors, and the generators arced violently. But it was hardly visible before darkness hit the laboratory, to be followed by a deafening explosion, like the air rushing together to make thunder, after a lightning bolt. The wall where Mike and Custer stood shook.

They were at the big door at once, and Custer had a flashlight, either grabbed up or in his hands all along. He worked the lock frantically. Then the door opened ponderously, and they were inside the room.

At one end, something that might have been either a wingless plane or a guided missile rested between the grids. But most of the power equipment, including the control-board, was completely gone, without a trace. And there was no sign of Bruce Dane.

II

It took a week to adjust to it. Captain Dane stayed on while they searched futilely, and gave up. It was Captain Dane who dragged out the only possible

answer—that there was a reaction for every action, and that something had been sucked forward to balance what was brought back. He helped them inspect the queer thing they had brought back, and he gave the first order that they go to work on it, once he realized that the odd arrangement his father had made in getting the contract left him in charge, with Custer only his second.

He did what he could with the group of research experts who came flooding down on them, bringing the tools of their sciences. Each evening, he went automatically back to his father's apartment, ate, and went out to a bar to drink himself just tight enough to be sleepy.

Captain Dane had seen his friends killed for four years on the see-sawing fields of Europe, and he could take it. But he was an automation, created around the flesh of Mike Dane, and sooner or later, Mike had to find it out for himself.

That came on the seventh night, while he sat in the little bar. He was thinking dully of his father's words: "In a big city, the only place where a man has privacy—real privacy, even from his own habits—is in a bar."

And suddenly, he realized his father was dead, within all the abilities they had to tell. He

lifted the scotch to his lips and drank it slowly, letting Captain Dane sink back, while Mike Dane grew used to the idea. For a while, it was rough, even though his father had gone in a peak of triumph few men could have equalled. Then his mind took the ache and the pain and put them where they should be—as real as ever, but in a corner where they could no longer keep him from continuing his own life.

He swallowed the drink, and realized that he'd been seeing Molly for at least five minutes without noticing her. She stood at the front of the place, staring uncertainly back toward him, and started back as he looked up and nodded.

"Sober, Mike?" Her words were nervous, and her fingers were doing strange things to the lapels of her little jacket.

"Reasonably," he answered truthfully. He ordered her old drink automatically, and managed a passable grin. "I was in the lunchroom, but they told me you'd left. Figured you'd gone to Caltech in a hurry."

Her eyes seemed to shine suddenly at that. "Better, Mike. I rate you, boy. I'm now a full colonel in the Air Forces, Research branch. My doctorate work is now a full project, and I'm in charge! Right near you—they cleared out the old Dowell

hangar, rigged it up, and are almost ready to go—will be by the time I get my uniform. I've been looking all over to tell you the news—almost forgot this place."

"Top Secret, of course?"

"No higher! I've arrived!"

He grinned at that. "Me, too, Molly. I may even be more no-higher than you are, now that Dad's . . . gone away. I'm in full charge of the works."

She finished her drink, and nodded. "I heard he was on some kind of secret mission. And I saw Morley coming out of your place at one ayem—so maybe you do rate my top secret, if he's working for you. No more drinks, Mike. I need coffee more."

"My place?" he suggested. She nodded, and he felt relief wash over him. It wouldn't be so hard to face the empty apartment and realize his father was gone completely. The ache still lay in his mind, but he had learned that grief must never interfere with living.

It was afternoon when he went through the main hangar and back to the side building that still housed the Enigma. Now, almost as if for the first time, he shoved his way through the crowd of top-level experts and studied the thing.

It was no more than twenty feet long, and about half that diameter at its largest. There were no wings or fins; such as any normal plane or even guided missile should have, but he knew now that it had been designed as a fighter plane. The nose swept up bluntly, the upper half covered by a clear bubble of heavy plastic.

That had been smashed when they had stolen it from the future, and there had been three guns sticking from it, all horribly twisted—as twisted as the body of the young man in the strange, abbreviated uniform inside. He had been dead, even to the cells of his hair and skin. But the machine seemed unharmed except for its cabin, which had now been repaired.

From the nose, it had sloped back to a stubby tail. Under it were two small wheels, and over it a tiny hook, purpose unknown. Aside from that, the only features were the miniature jets on each side where the wings should be, set to swivel in complete circles—forwards, backwards, up or down. In the tail, another swivel nozzle or jet was hidden, which could also be turned in a complete circle sideways.

It obviously could never fly. The jets were designed to burn no fuel. Instead, their six-inch

bores were lined with tiny bits of wire that pointed back toward the exit, and there was a coil of peculiar design around the front of each.

Custer came over, shaking his head. "You look better, Mike. Figured how she flies?"

"No. Anything new?"

"A little, but none of it good. Morley thinks those bits of wires work by the point-discharge principle that will keep a toy spinning when it's connected to a battery and high-voltage coil. And in that case, those coils must somehow collect the atmosphere ahead and pack it enough for the jets to do all the lifting."

Enright had come up, and was shaking his head vigorously from side to side. "Not now, Morley doesn't. He found the switch that turned them on, and tried it. Nothing happened!"

They had learned some things, but most of them were like that. The ship was split down the middle, horizontally. All the equipment was in the upper half, behind the pilot cabin. The lower half was apparently packed solid, and encased in something so hard and tough that diamond drills and a monatomic hydrogen torch had made no dent in it. But it held power. They were sure of that, since the big cables came from there to all the rest of the machine.

The metal of the hull was pure iron—chemically pure beyond even a trace of anything else they could find. Yet it was harder and tougher than the best beryllium steel they knew. At a hundred degrees below zero, it turned as soft as lead, but hardened again at higher temperatures—and then was nothing but soft iron. Something was done to it to give its rustless, impervious toughness and its tensile strength of almost a million pounds an inch, but they had no idea of what.

He had accepted the experts' word that the controls were worked by magnetic current without too much surprise, though they went around muttering something about Ehrenhaft being proved false and seemed to regard it as something that shouldn't be. Here soft iron was used as insulation, and a peculiar plastic seemed to form the conductor.

Another group was going insane over a transformer that was connected to the big tank the X-rays had showed in the lower half of the ship—without revealing whether it was a storage battery or some kind of atomic converter with no radiation. The transformer looked normal enough, but its secondary delivered exactly one thousand

volts at four hundred cycles per second, whether the primary was hooked to a storage battery, a tiny dry cell, a 1440 volt sixty cycle a.c. line, or a high tension coil that gave better than thirty-thousand volts. The gadget weighed about twenty pounds, and they'd put as much as fifty amperes through it without its warming up the slightest—fifty kilowatts, and probably only a small fraction of what it could carry!

It had a soft iron core, copper wire wound exactly like a normal transformer, and a thin smear of insulation. Substituting a new iron core made on the spot, or a new winding designed to fit had cut its ability to handle power, but had made no change in its constant output, though the use of both the new coil and core had given them only a rather poor ordinary transformer.

There was another transformer-like gadget on the back of each of the two seats in the cabin, apparently designed to rest on the pilots' shoulders and be strapped on. They had tried putting power into it, but there had been no results. The power disappeared, but nothing happened—no fields around it, no heating up, no sound or movement.

The worst case was something whose purpose they did know.

The gadget that transformed electric current into magnetic current was a simple copper plate attached to an iron solenoid, with a winding of electric lines around it. That had worked perfectly with a substitute winding, a copied solenoid, or a new copper plate. But it hadn't worked with more than one thing substituted!

There were bolts whose nuts simply slid on—and then couldn't be removed in any manner they tried. One of the tools they had found behind the seats removed them, but it seemed no more than a simple, transparent piece of plastic that simply grasped the nut loosely.

"How'd you find it worked?" Mike asked.

Custer grimaced. "There's an instruction book, Mike. It was nicely shoved into one of the tool kits, complete. Did you take a look at the lettering on the instruments?"

Mike had seen it. There were at least forty letters in the alphabet they used whenever this ship had been made. Some of them, like the Greek *theta* for "th" and the reversed *e* for "uh" were easy enough to decode. Some of the others seemed ridiculous, unless the pronunciation had undergone a change.

"So you couldn't read most of it?" he asked.

"No—we read it. We put a code boy on it, and he worked out a full translation. But did you ever look closely at a service manual on anything issued by the government? Sure, it told you to take such and such a nut off, and screw down such and such a switch. But I'll bet you never found one that gave the real purpose of a machine, how it was made, how to substitute parts if the right ones weren't around—in fact, anything but how to take it to pieces, put it together, and tune it up; even then, you had to know what it was all about by yourself. Right?"

He went back to his desk and returned with close-typed sheets of paper. Mike looked through them, and at the photostatted diagrams. He located the jets. The big coil at the nose was marked as being a supercharger, which would indicate it might somehow compress the air—but he got no further information, and the thing still hadn't worked at all.

Then he gulped. "What the heck is protergy?"

Morley had come up then, and his scowl deepened at the word. He picked up the sheets, rolled them carefully, and handed them back between thumb and forefinger to Custer, making a ges-

ture of holding his nose. He was supposed to be one of the ten top physicists in the country, but he now looked like a simple, tired old mechanic.

"Protergy, kinerger, duration, extension, matter," he said in disgust. "They make their handbooks less intelligent by giving basic theory. And from now on, never let me see a handbook that has that. It does more damage than good. Protergy is a state of excitation through extension, like gravity and magnetism, but the raw stuff from which they are made. Kinerger is a propagation of excitation through extension with a fixed relation to duration—light is made from it. Matter is a resonant matrix for the transformation of protergy to kinerger, or vice versa, and is itself composed of protergy in a kinergetic state, causing a compression of extension within any given duration . . . ! I'm quoting, if you think it's pure mouthwash. And just between us, it doesn't mean a damned thing, couldn't mean anything, and shouldn't. It has something to do with crystals, too—but somehow, I get the idea that every single atom is a crystal to those boys! Incidentally, Custer, what did you think of that crack there about the non-Einsteinian recognition of the limitations of the law of conservation of matter

and energy?"

Mike shook his head and moved away. Fortunately, it wasn't his business to understand, but only to work with Custer in trying to get results. He found one of the men working on a tube of something—or rather, two tubes, each with a liquid oozing out. It was from the repair kit, meant to glue together sheets of the iron covering of the ship. There were half a dozen such tubes.

"Works fine," the man said. "Spread A on one of the sheets, squirt B over it, and stick on another sheet. Only it won't work on anything except that cockeyed iron of theirs—won't work on that after the temper is drawn by too much cooling. But it sure does what it's meant to—the two sheets fuse together, exactly as strong as if they'd been one from the first."

Mike nodded and went on to look at other problems. The glue had obviously replaced welding and riveting in the future. At least he could understand its purpose. But most of the men here were working with machines that he couldn't understand, much less trying to grasp the principle of the gadget they were testing. He moved slowly back toward the big X-ray machine, wondering how much more they could cramp into this

building, and how long such a concentration of great brains could exist without Pan-Asia finding it out and sending over a super-special bomb.

The Alliance had been crowded back even further now, and the few men in Washington who knew what was going on here were practically hanging on their phones for a word of something they could use to change the tide. They were desperate enough to accept time-machines as they'd once accepted an atomic-bomb which they couldn't really believe in.

The X-ray and torsion meter were apparently cooperating on one of the tiny "bombs" they had found at the nose of the ship. They looked like tin cans of normal size, with rounded noses and small finned tails. Apparently, they were loosely joined together at the center, but the full strength of the big torsion machine was making no progress in separating them.

The X-ray of one showed an inside that seemed to be mostly solid metal, but there was a confusion of parts near the end that could only be the elaborate check-and-balance arrangement of a fuse. There was nothing that seemed capable of holding the front and back together, in spite of what the torsion ma-

chine was failing to do.

"Can't even get one of these apart," the technician said, picking up one of the tiny "bullets" that had been on a belt on one of the ruined machine guns at the front of the Enigma. "I've got a couple of guys out in the inner field, trying to crack one open. Thought they might contain some liquid or gas that was bad medicine. But . . ."

"Get them back!" Mike told him sharply. "Before they blow off an arm or leg. Besides, this stuff stays inside this building, unless you want to run a security stretch of five years! Call them in!"

The technician scowled, and then began to look scared. He was gone at a run toward the entrance, to double through the main hangar toward the inner field.

Mike turned the thing over in his hand gingerly, looking at its X-ray picture, which seemed to show nothing but a rough roll of metal inside the waxy coating, and something that might have been a percussion cap—it was too faint to tell. The thing itself looked like a small tubular capacitor without the wires trailing from the ends.

Enright seemed to have the same idea. He came up, with Custer and Morley arguing something esoteric a few feet

behind, and took the little bullet out of Mike's hands. "Might glue wires on them and sell them for tubular condensers," he said.

Morley let out a sudden yell. "Electrostatics!" He caught the power switch on the torsion machine in a running jump, and set it into reverse. His face was white when he turned back.

"Electrostatic force . . . it has to be. The plates of a charged capacitor don't separate easily, either. And yet . . . my God, the number of *farads* that would take! Dane, Custer, you can be glad that machine couldn't crack it—or the whole building would be dust—nothing but dust . . ."

Something slapped against the back wall, and the two feet of reinforced concrete jerked inwards. Mike felt himself hit the floor, while the big X-ray machine crashed within inches of him. There was a roaring sharper than any explosion he had heard, and the laboratory shook again. But its construction had been sound enough to save them, except for bruises. They got up, staring through the dust that was everywhere.

"Pan-Asia . . ." Custer began.

Mike shook his head, finding trouble with his tongue at first. "A damned fool—and the end of a couple of men who followed orders," he said. "They cracked one of these smaller bullets!"

He limped forward to peer out, and then turned back, sick. The technician whose bright idea it had been was still partly there, though completely dead. There was nothing he could see at a quick glance of the two men who had done the trick somehow. And that had been only the smallest of the gadgets!

III

Mike sat glumly in the seat beside Molly, staring up at the stars. She had given up trying to talk, and was now driving quietly.

How did those stars look, he wondered, where the Enigma had been made? How far ahead? And if they cracked her mystery, could a weapon like that end wars for good and for all? He could see no possibility for a nation ever risking fighting another when even the bullets of the time were the equal of a blockbuster, the small bombs must be as good as A-bombs, and the big ones—well, if Custer and Morley were right, the huge capacitor that lay in the belly of the Enigma and furnished her power must be far stronger than any H-bomb could be. How many electrons . . . no, that was meaningless. They didn't pack electrons in so much as they somehow strained space . . . as meaningless as the babble about protergy and kinery. The result

was that one hundred percent of the energy could be released in a billionth of a second or less—probably millions of horsepower hours, in almost no time!

He wondered how they got the energy they stored there, and why they should use so much to power a plane, if the size of the huge capacitor tank meant anything. With the constant voltage transformer working in reverse, they could pack it in; feed in a steady thousand volts, and it would go on working, even if the voltage inside the capacitor went up into the millions. But how could they hold such voltages?

With such a weapon, there could be no war. And that was the dream of the scientists like Molly, whatever she had found; it had been the dream of his father, and he had always shared it.

Yet up there in the future, where such power was used on a small pursuit ship, war was obviously a part of their life! Mass production fighters weren't made without a role to play. He shook his head in the breeze the car was creating, trying to picture such a world into which this world was headed. Or was it? If they cracked the secret, then they would have something that future had not had in its past. And with a multiple-choice

future, they might even find a road to permanent peace for themselves!

Molly stopped the car outside the gate, where the same guards were still posted, in a pretense that all was normal inside, and that no special protection was necessary. She ruffled his hair and kissed him quickly. "Be careful, whatever you're up to, Mike."

Then she was gone back toward the city. He passed the guards, and went inside to the office. There, his flying clothes were all laid out, together with an oxygen tank and mask. He'd thought of taking a parachute, but there wasn't room for it in his case; his body was too long for the cramped space inside the Enigma, anyhow.

Only Custer and Enright were there, where they'd knocked down the rest of the wall, and wheeled the Enigma out in the darkness onto the inner field.

"All set up?" he asked Custer.

The general nodded. "Every bit of test equipment on board. And I hope you can learn something more in actual flight than we seem to be getting the other way. Sure you still want to try it? We've got test pilots for such things."

"I started out testing Dad's planes and flying jitneys by the seat of my pants." Mike took a

last drag on his cigarette and mashed it out. "Anybody you'd rather see go in her?"

Enright croaked hoarsely. "Me. I've flown them off the drawing board, too, Mike—before I went into the shop. I . . ."

His face was pleading, almost tearful in the light of the small, deeply shaded bulb. But Custer shook his head quickly, and the little man stepped back, his fists knotted convulsively. Mike tried to grin a farewell, and climbed in.

There was barely room in the pilot's seat, once he had stopped to get under the transformer gadget that used up power with no result. He squirmed in, and reached for the throttle; at least the handbook had shown which parts were which, and he had spent all the afternoon studying the transliteration. He'd even found that one gadget kept it from starting when it had no room to fly. He cut on power.

The only result was a red bulb that flashed on at the top of his control panel. He bent forward, trying to read the tiny letters of light it revealed. "Safety straps unfastened" was as close as he could decode it. He started to look down at the seat, but the movement made him brush against the straps hanging from the mystery transformer.

On a guess, he shoved his arms through them. The light went out.

This time, as he moved the single control back, indicators flashed green. He'd already figured how the thing worked, though. Back for up, twist for turn, sideways to roll over, and a tighter or looser grip to regulate his speed. It seemed simple.

He pulled the lever all the way back, and squeezed down on it. Ahead, the side of the building suddenly flashed down out of sight, and a steady roar came from beside him.

It was easy. The jets could lift the ship like a helicopter, but at a speed no helicopter could match. And the ship seemed to be inherently stable, in spite of its forbidding appearance. The response to any control was instantaneous and effortless, but he climbed to something he guessed to be three miles up before he tried any real maneuvering. Then he switched to horizontal, and felt her leap ahead. He increased the power. The wind roared, and the ship bucked faintly with the old familiar feeling of crossing the supersonic barrier. If the dial meant what he thought it did, his airspeed was now better than 1200 miles per hour, and he'd only started to put on power.

He changed back to vertical

and went straight up, but this time the ship tilted—apparently by some automatic device, since he knew of no forward and backward tilting control—and kept her blunt nose facing the flight line. She lifted, rising to thirty thousand feet. The thrust was still full powered, even in the thinner air—the coils that serve as superchargers must work, somehow, but only when in actual flight. However they managed to compress the air, they were efficient. He lifted further, going up to forty thousand, sixty thousand, and beyond. His estimate of the heights on the indicator showed a top of better than twenty-five miles, though the air should have been too thin there for any compressor to work. But she was up to twenty miles now, and still rising.

It was enough for him. He set her on a straight course, and tried the maximum speed. At what looked like a little better than twenty-five hundred miles an hour, she began to shake—the plastic replacement they had made was unable to take it. He slowed back to a thousand, wondering how they kept the ship cool. There was no sign of her heating up from friction. He cut into a tight spiral, and began heading downwards a little. The response was amazing. At that speed, she turned about in the

air like a light-plane stunting.

Then it hit him—there was no blackout, though such a circle must be putting at least twenty gravities pressure on him! It felt like a leisurely turn in a slow car! And the tension that should have warned him to ease off on the controls had never hit him.

Anti-gravity, or synthetic gravity neutralizing the pull by an exact counter pull? It must be some such device—probably the gadget that he'd called a transformer at the back of his neck. If it were adjusted to maintain a feeling of one gravity, naturally it would show no results when lying quietly in a one gravity field!

He found his course toward the testing ground that had been cleared and abandoned during the beginning of the war. It was again posted and waiting for him. He came over it at fifty thousand feet, set the cross-hairs of the tiny sight, and pulled down on the bomb-trigger that was to release one of the tin-can sized bombs.

The ship steadied and went into a climb, without a move on his part. It went up to eighty-thousand feet. Then something clicked, just as his eyes caught the target in the cross-hairs again. He seemed to hang there for long minutes, before he final-

ly realized he was again cruising on. Then, at last, hell blossomed below him. His work was finished, and Custer and Morley would have their check on whether the stuff worked as they expected. But he already knew that a ship with a full load of such cans could do more damage than their top-sized bombers, all combined.

The return was routine. He centered the field in the same cross-hairs, lining them up to touch the spot from which he'd taken off. For a second, he had to stop to realize it was still dark down there—but the system must have worked by infra-red, since the image was clearly lighted in the little sight. Mike touched a button marked "Land," and waited. The ship began dropping smoothly, and came to an exact landing on her own. She even cut power and released the straps from his shoulders.

He snapped off his mask, and ducked down and out of the little door, squinting through the darkness. "Back safe and sound," he shouted softly. "And after this, a comet will seem like an ox-cart."

A flashlight picked him out, and Custer's voice drifted out to him. "Come in here, Mike!"

The tones were warning that something was up. But it was

a totally inadequate warning for what the flashlight revealed.

The end of the laboratory beyond was a complete wreck. There was no pattern, even, to the twisted, distorted shapes that lay there. It was as if a fire beyond any heat men had experienced had suddenly melted two sets of machinery into one, and yet had left parts of each untouched.

Mike stared stupidly about.

"The capacitor bank and dynamos have come home," Custer said, and his voice was almost a whisper. "I was just moving back when I saw it. They were just a ghost—then here they were, right in the middle of our equipment. Two objects, one space. The riddle is answered—they didn't explode. They just got out of each other's way, molecule by molecule. From the wind, I'd say the air got completely out of the way."

He swept the beam around again. "A minute before you landed. I've been trying to think. Machinery heavier than the ship . . . didn't go as far . . . maybe action and reaction not the same . . ."

But the torch was still centered on the foreground of the ruins, and his mind was clearly not on what he was saying.

Mike took the flash, and began

going over what he could of the rubble. Then he turned. "No. No control panel here. And that means that Dad—or whatever is left of him—didn't come back. Better get the few men we can trust completely to clear this mess out with arc cutters and clear it away."

"I'll take care of it," Custer agreed heavily. "It looks as if we're washed up here, Mike. Most of our stuff is ruined between the explosion and this. And we can't work here, anyhow, if there's—more to come!"

"The scientists and technicians can take what's left. And the readings on my flight and whatever they need from the Enigma. They'll know where to ship it. I suppose you'll have to go to Washington to arrange for it—one of us will, anyhow . . ."

His leg ached again, as if the toes were curled up tightly and he was resting his full weight on them. But there was no time to think of that. The mess had to be cleared away, space had to be left for anything that came back, or whatever it might do. He'd have to post guards here, and somehow make them keep watch without telling the whole story.

No wonder Pan-Asia was nearing the Rhine. They hadn't developed a time machine to curse them with false gifts.

IV

The same idea was in his mind, only greatly strengthened, when they met with those in Washington who knew of Project Swipe. At six hundred feet below street level, where most of the higher echelon actually met, even the best construction and air-conditioning had never overcome the cold and the dampness that was in spirit more even than fact. Mike's missing leg ached worse, and his thoughts were more bitter than ever.

The assistant to the Secretary of Defense opened the business briefly. "So far, gentlemen, we've spent months of preparing, a great deal of effort concealing, and five weeks of actual operation of this project. The Dane Aircraft works have come to approximately a standstill—and you know the need for those planes as well as I do—because we've been forced to screen out most of the workers, and keep only a token staff there; since our contract guarantees normal operations, the tax-payers will have to foot that bill. We've also tied up most of the great research organizations of the Alliance this last month. And unless my preliminary information is false, the enemy has only failed to penetrate our security because there has been nothing to learn, not because our most strenuous

efforts have kept an airtight net. Dr. Morley, will you sum up what the laboratories keyed to your section have discovered?"

"Just a minute," another man asked. Mike didn't know him, but he could guess that he must be from the President's office, from the looks directed his way. "How do we know this wasn't meant for us to find? Can we say it was a genuine plane?"

Custer stood up. "It was an actual war-plane, and one that had seen combat. Nothing we have short of an H-bomb could have ruined the plastic bubble, as it was first found. *Nothing* could have killed every cell in the pilot's body, to our current knowledge. The notice pasted inside the handbook, recommending action if forced down in enemy territory, confirms the desperation of those using the plane. We don't know whom they were fighting — or what — but this was no fake. It was a die-stamped job, mostly—and that means mass production. They've got war up there, and it's something we'd better forget, if we want to stay sane. All right, Dr. Morley."

Morley shook himself, and began reciting what they knew. The capacitors—big and little—were just that; the piece they had recovered from Mike's single bombing had proved it. But it

was impossible for such capacitors to exist. Capacitors carried a charge according to the product of the plate area and number, times the dielectric constant of insulation, all divided by the thickness of the dielectric. Size, number of plates, and thickness could only be altered within limits. So in the future, they had apparently found a material with a nearly infinite dielectric constant! He tried to explain how impossible that was, but Mike lost track of some of that. Anyhow, they now knew that this dielectric was a thin smear of a lacquer-like substance, the same as their insulation, and would stand up under a voltage that exceeded anything imaginable for such a thin substance—several million volts.

“Naturally, it’s completely self-healing when cut or punctured,” he added. “It seals a cut instantly, or you’d get a short through the air around your condenser. I am informed it’s composed of helium, lithium, argon, fluorine, bismuth and carbon. I have no idea of how they managed to make a compound out of inert gases. And I have even less idea of how they polymerized the stuff. We don’t know why it works, how it is made, nor how to duplicate its properties. It is completely outside all our knowledge.”

Other accounts began to come in, of equally impossible things. Copper could not be alloyed with nitrogen — without forming a compound — but it had been handled that way. No alloy of simple tungsten and boron could stand up under a temperature of over 6000 degrees Centigrade, without pitting. Bolts that held their nuts on by magnetostriction couldn’t have those nuts removed by a tool that was nothing but vinyl acetate.

Mike listened, trying to picture it all. The trouble was that men were only barbarians. Columbus had known that iron would sink, and had built his ships of wood. But if he’d been given a metal ship, his time couldn’t have cast the plates for more such ships. DaVinci had conceived the helicopter, but it took centuries to develop the steels and alloys, with their heat treatments and other processing; he had had no power adequate in his time, and he couldn’t have understood the ignition system of an engine if he’d found one. Men of the old stone age couldn’t make rifles.

The chemists were the last, with their glum report on non-metals that were completely pure but behaved like metals, paints that carried heat one way much better than the other, but could-

n't be analyzed at all, and a host of other things.

There was only one weakly cheerful note. The head chemist of DuPont stood up, and he seemed almost too modest as he announced it. The trick glue that served to weld metals together could not only be duplicated already, but could be made in tanker lots at a reasonable figure. It was much simpler than they had thought. And it could be made to glue anything. The glue formed an open-ended chain molecule, and it would glue any element which was *not* attached at the end. The sample had contained all elements except iron, so it had worked on iron only. But he could provide one which contained only nitrogen, and which would glue all metals, although it didn't harm plants or animal substances. It was probably the greatest stride in a thousand years of sticking things together. Spread the glue, add the polymerizing fluid, and wait five minutes.

The assistant to the Secretary of Defense nodded. "A remarkable piece of work, doctor—it'll probably win you top honors in the field for the year. But since we're equipped to weld and rivet, and not to pressurize joints for five minutes, I suspect it won't help production for quite some time. Mr. Dane, what do you

think?"

Mike grinned sourly. "It'd slow us up now. But you might spread a batch of it over the enemy by plane, and follow with the polymerizer. That *might* glue him down for a few days."

A few smiled, but nobody laughed.

Custer summed it up. "A gun would do *Pithecanthropus* no good. He couldn't use it without bullets—arrows wouldn't work. And if he knew about bullets, he still couldn't build a forge to melt his lead. Marconi couldn't have found out a thing about radar—and couldn't have built modern tubes if he'd had full instructions. Show Faraday twenty kilowatts going into an antenna and apparently nothing coming out, and he'd have given up physics to teach Latin the rest of his life!

"In the last fifty years, science has quintupled itself. In the next hundred, we can't imagine what it will be. Maybe they tailor the electron rings to make that transformer work, but I can't examine such things, and couldn't duplicate it in any event. Probably the men who designed it couldn't build one with our crude equipment. Unto him that hath, unto him shall be given. And we're still have-nots!"

He paused, watching their

faces. Then he grimaced. "We don't even gain theoretical knowledge from it. We might think it proves the future is invariable, since getting this has made no change in our science. But it proves nothing. We can't change ourselves — but a man from that future might decide to come back and take over the world with some of their heavy armament that history shows doesn't exist now. In that case, the future might be changed—or he might be unable to do it . . . Our report, except perhaps for the metal glue, is—perfect failure, with a recommendation that nothing be done about it!"

There were no dissenters. Words spilled across the table, but they all boiled down to the same things as Custer had said.

Mike and Custer caught a plane back together. Mike was wondering whether they hadn't changed the future, after all. Pan-Asia was rumored to be past the Rhine, and the Alliance was behind schedule, in many ways because of this useless effort. The language in the handbook for the Enigma had been English — but would English even be used in the future toward which they headed now?

What kind of a world could exist that would make such a concentration of destruction as

the Enigma a mass-production affair? What could the men be like, and the scientists who would loose such things on the world, or the fighting men who knew the stupidity of war and still could not stop it? Or had they thought that such weapons would stop it? Every improvement made in killing power had brought with it the idea that war would grow too horrible, and peace would come. Yet each move had only made the horror worse. It was a vicious cycle that could only be broken by an explosion—and one which apparently lay far in the future.

He shrugged it off, and turned to Custer, who had remained in the assembly chamber longer than he had. "What happens to the Enigma?"

"We seal it up, and give it to a museum when the fracas is over."

Lock it up in a museum—and taunt and mock the men who would waste their lives trying to understand it, when they might do better never knowing it existed. Mike thought of Faraday turning to Latin after watching electricity flow into an antenna and vanish; if that had happened, the world would have been poorer in every way. The country that kept such a thing would always be under its insidious influence. He finished Cus-

ter's quotation in his head: "And from him that hath not, from him shall be taken away, even that which he seemeth to have!"

He started for the Dane buildings, where work was just going on toward restoring normal production. Then he shrugged. He was still as useless as he had been since his father had had him brought back at the start of this. Custer was the actual supervisor here, and Custer knew what orders they had from the government. He wanted a drink, someone to talk to about nothing. He swung toward Molly's new little apartment, half a mile beyond the field. He ought to propose, he supposed—or renew the old proposal of years before. He thought of her work—and the fact that she could never live a wholly normal life when wrapped up in it. But it didn't really matter. Molly was just Molly, no matter what turned up—the only woman he'd ever really liked.

He wasn't surprised when she didn't answer. She hadn't expected him back for at least two more days. But there would still be a drink in the place, and a chance to sleep until she returned. He pulled the key out of his pocket, and went in. There were two letters shoved through

the slot in the door, and he picked them up and put them on the little table by the sofa.

Then he stopped. The table was littered, as if Molly had been doing some last minute hasty work before leaving. A cloth was thrown over it, but he saw enough to make him toss it back.

Iron insulation surrounded plastic "wires," and fed out from a square box to a little motor affair. A battery was disconnected, but he slipped it into place and held down the switch. Without coils or commutator, the motor began to turn.

Magnetic current! Somehow, one of the little transformers from the ship must be hidden in that box, with its strange wires running out. And Molly had found how to make it work. Scientists with world-wide reputations had been stripped every night before they left the laboratory to make sure they would have nothing that could be picked up by the enemy. But Molly had this!

He remembered the atomic athodyd and the robots, which Pan-Asia now definitely had. And he remembered that no screening had ever found the man who was responsible. And Captain Dane was sick as he gathered up the apparatus and mashed it into a shapeless mess

on the rug. Captain Dane went grimly to the phone to report the spy . . .

And Michael Dane put it back on the cradle without using it. Molly was still . . . Molly. And his mind had already rationalized his actions. Let the Pan-Asians have the scraps. They couldn't solve anything from what was left, and there'd be no more chance to steal parts of the ship. Let her go, knowing she'd been discovered by him, fleeing without knowledge of when the Alliance would pick her up. Or let her wonder about the damage, but still stay on to do her dirty work. A known spy was safer than anything else.

He threw his key down on the little pile of junk, and went out of the room to find a bar and get drunk. He had a lot to forget. The Enigma had cost him his father. It had probably ruined all chances of winning the war. And now it had taken Molly.

V

He had never found the bar. He had gone on walking, while his foot ached, and after he forgot about it. He had walked until it was dark, and the idea had come up from the darkness and grown clear in his mind. Then he had taken a cab and come back to the field. In the main

hangar office, he found the single star that had finally come for him—an iron star, to show that he was only a producer of materials instead of a real military general, but still one which gave him authority enough. He snapped it onto the collar of his hastily donned flight clothes, and opened the door to the ruins that had been the laboratory, now deserted except for the six guards and the hulk of the Enigma.

He dismissed the men, giving them formal notes, and waited for them to leave. Then he switched the lights off and headed for the machine, again re-assembled and ready for flight—or for plaguing men through the decades to come.

In the gloom, there was a sudden cough, and he swung to see Enright at the doorway, his face almost glowing under the light of a single bulb still on. Mike grimaced, but it didn't matter. Enright seemed to have some odd attachment to the machine, and the guards had complained about his hanging around. Now he stood there, licking his lips and staring at the Enigma.

His eyes switched to Mike. "You're taking her up, Mike? You're flying her again." He studied Mike, and nodded slowly, as if making up his mind. "And you're not coming back. You're

going to destroy her. I thought of that, too. Mike—Mike, don't. Let me. I'm just a has-been, Mike—but I want to feel her in my hands once. After that, it won't matter . . ."

Mike shook his head. "It's my trip, and I'm older than you are, tonight. You're off bounds, Enright. If you're caught in here now, you'll be up for another security check. Better get back. Maybe you're right, and I'm going to destroy her. But it won't do for you to be found with me, if I do. You've got your boys to worry about, and I don't have anyone. Go on, scram!"

Enright licked his lips, and shook his head. "My boys! Yes, yes of course, Mike. Of course. But let me stay here a little longer, while you get her out."

"Okay," Mike told him. The man must be getting senile, he thought. But he'd forgotten one vital thing, and Enright could watch the plane while he went for it. "Stay, then. But you'd better go as soon as I get back. Only a minute."

He swung out to the entrance, and into the main hangar again. There was a flask of hydro-fluoric acid around somewhere, and that had already been proved capable of dissolving the trick metals and the trickier insulation, though they resisted even

such a violent acid for a surprising length of time. He finally found it, and went back.

Enright was gone, and the little light bulb was out. Mike stumbled through the darkness, banging his shins on something that shouldn't have been there. He cursed, and decided vaguely that something should be done about men who left things in the middle where nothing was supposed to be. Then he grinned bitterly as he realized he wouldn't be around to do anything about it.

He found the steps to the control cabin of the Enigma, and went up them, and into the cabin. He reached for the door, just as a sudden loud noise shook the air of the laboratory. Probably the guards were trying to get back. He settled under the pseudo-transformer hastily, stuck his arms through the straps, and sent power into the wheels, to go moving out where take-off was possible.

It was only as the ship was lifting savagely that he realized the laboratory floor had been bare before. Something had come out of nowhere! Maybe the control-panel had finally come back—and his father! For a second, he started to settle back. But it was pointless. The corpse of Bruce Dane could do him no

good, and he might have no chance to finish this business, if he were interrupted now. The Danes had saddled the world with the worst Trojan horse it had ever known. Now their debt had to be paid, as far as it could be paid.

He shook his mind almost free of thoughts, and went tearing upwards in the Enigma, crowding on full power. The ship almost flew itself, and he found the hatch that led down into its belly, throwing it open with one foot. He pulled the bottle of acid out, staring at its waxy surface. He uncorked it and waited.

When the great capacitor that lay there blew up, it wouldn't do to have the Enigma too low!

The needle went up, indicating twenty miles of height, and he pushed it on, until it crowded the pin at twenty-five, and the jets began to lose apparent power. There he leveled off, set her into a tight circle, and gently dropped the bottle of acid down into the inside, where it would begin eating through the tough metal and tougher insulation, to short-circuit unimaginable power. His foot snapped the hatch back, before any of the fumes could get into the cabin.

For a second longer, he let the plane circle, before he reached for the controls, to head her out towards the ocean.

"Hands up, Mike!"

The voice broke on the words, with the fear riding thickly on them. And Mike's hands shot up as he turned to see Enright crawling out from the rear, his stark white face dirty and strained. The man was shaking, and the gun wavering as it pointed at Mike—the one thing a man who has seen guns in action will always fear.

"You damned fool," Mike said, trying to keep his voice level. "Do you realize you're sentencing yourself to death?"

"They won't catch me." Enright had pulled himself up now, bracing himself to withstand the strain of pressure created by the turning of the ship, now much slower and looser than before, but still too much for comfort outside the field of the pseudo-transformer. Mike realized suddenly that the man had probably been blacked out and had seen none of his work with the acid.

"They won't catch me," Enright said again. "And this time, they'll be satisfied. They'll have to be satisfied. My boys are prisoners of Pan-Asia, Mike Dane! They have been for three years."

Horror and disgust hit at Mike as he stared at the half-hysterical man. "You!"

"Me." Enright settled into the other seat, and pulled the con-

trol stick over to his side, kicking it around on its frame without letting the gun drop from its aim at Mike. "Call me a spy, Mike. Go ahead. You can't say anything I haven't said. When I sent them the athodyd plans—and the robot schematics—when I promised them this. But they're winning, anyhow! It doesn't make any difference. It just ends the war sooner, so less get killed. And my boys won't be tortured. I got an ear once, a single ear!"

"So you want to turn the world over to such people," Mike said, and now he was glad that the acid was eating away down there. "You—and Molly!"

Enright looked at him with an unchanged, taut stare. "Molly? No, I couldn't find what she was doing. They wanted that, too—they wanted it pretty badly. But this will satisfy them. It has to satisfy them. They'll free my boys, and the war will be over. Because they think they can crack the secret there. But you're going back, Mike. I don't want you like my boys!"

He reached forward, to press a control on the panel, and then stopped. "You should have a parachute. I—" He gulped, and his finger was shaking on the trigger. Then he caught himself. "But it's better than torture, Mike. And I can't shoot you.

Damn it, I can't!"

The finger hit the panel, as if he'd spent hours studying it in the handbook or in their checks of the real thing.

The Enigma stopped with a violent braking from her jets that threatened to buckle her back on herself. The airspeed indicator jerked to a stop against the zero pin. And suddenly, the seat under Mike seemed to explode outwards through a panel that snapped open and shut behind him. He'd been ejected into the air, twenty miles above the Earth without a parachute.

Now the Enigma flashed into motion again, and Mike jerked the oxygen mask up against his face. His body ached and burned inside itself at the change in pressure, even through the heavy webbing of the high-altitude suit that could only partially equalize things. Instinctively, he pulled up the zippers that sealed it, and it flooded with oxygen, ending the attack of bends before they could reach a full start. The pressure held his arms and legs out rigidly, but the feeling now was one of lightness and almost peace as he went into free fall toward the ground below.

The Enigma had turned and was heading westward at full speed, a little erratically, as En-

right probably fumbled while learning to handle it. But it was soon lost to sight. Mike wondered how far he would get before the acid did its work—perhaps he'd reach his goal, though that seemed doubtful. But he had no way of knowing.

Surprisingly, he was falling straight toward the little field. The air began to thicken, slowing his fall and setting up a shriek in his ears, while the suit became warm. Then it settled back. There was almost no wind, though he was surprised to find that it was raining gently here. It was too bad that he'd probably smash into the private little field. A man should keep his dying quiet, not make a mess of it where others would see . . .

The ground touched his feet! The long fall was over! And he felt nothing; no shock, no sudden impact, and no instant death he had expected.

The purpose of the psuedo-transformer was plain now. Anti-inertia! Some field that had no effect on gravity or acceleration up to the normal limit, but stubbornly refused to admit that mass had inertia or momentum beyond that normal. No wonder they hadn't detected an energy output.

It was hissing above him,

probably hot. The cover on it had been removed and never replaced, and the rain was sizzling softly against it. He shucked it off, along with his heavy suit, and began kicking a hole into the damp earth to bury it, where even that trace of the Enigma would be gone, until its normal iron core could rust away in the ground.

It was sizzling worse as he threw the last wet earth over it, but he paid no attention to that. Finished, he started back toward the ruined laboratory, his mind dulled, and without any purpose.

Then he heard a faint voice, and jerked erect, almost letting his prosthetic leg double under him.

"Mike! Somebody! Hey!"

It was his father's voice.

Mike opened his mouth to answer. But there was no time. From the place where he had buried the gadget, there was a sudden eruption of steam as the wetness found some vital spot. Then the whole field seemed to explode. Mike caught a brief second of the glare, before something hit him with a giant's hand, and he was suddenly unconscious.

VI

Mike had vague memories of apparent clarity, and of the face of his father and that of Molly

over him. But when he finally came out of the last of the drugs and the delirium, ten days had gone by, and only Custer was beside him. He sat up, or tried to, but the other man shook his head.

"You're all right, Mike. You had a concussion that was a honey, and you lost a leg—but it was the prosthetic, not your good one, so I guess that won't matter. Here." Custer threw a small box on the bed, close to Mike's weak fingers.

"Dad?" Mike asked, and was surprised at how rusty his voice felt.

"So you heard him?" Custer grinned, though there was a strange shadow on his eyes. "He came back, unharmed—with no memory of any time elapsing, but he was stuck under a section of the control panel. A good thing we had the place cleared this time. He thinks nothing happened, except that the time-dredge exploded. We took him to the hospital with you, and managed to convince him that the shock had messed up his memory. He'll never know about the Enigma."

It was probably quite possible, Mike realized. There had been no more than fifty men who knew the whole story, and none of them would talk.

"Better open the box, Mike,"

Custer suggested, and then bent down to do it for him. There was a medal there, and two gold stars pinned to the velvet back.

"For what?" he wanted to know. "For stealing the Enigma and losing it. Or don't they know about that?"

"They know—between your raving and the black-light camera and pickup we had in the laboratory to keep tabs on the Enigma, we have the whole story." Custer reached into his pocket and brought out a heavily folded newspaper clipping.

Mike caught the headline, and gasped, skimming down through the story. Poor Enright! He'd apparently reached his goal safely, and the Enigma must have been transferred directly to the long sought secret production plant of Pan-Asia. But they'd probably tortured him and the two boys, after the results. It seemed that half of the Gobi desert had erupted. The Enigma had finally blown—and it must have touched off a whole collection of hydrogen bombs with it. Pan-Asia now had exactly *no* secret production works, and no inhabitants for a hundred miles around.

"But that isn't why the stars," Custer said. "Those are for the real reason we're finally winning the war. Project Swipe is paying

off. They took that idea of yours seriously."

"What idea?"

"Spraying. We've been running planes over Pan-Asian territory with the metal glue, and spraying from our top altitude. It's heavy enough to settle in the size drops we use. Next day, we go over with the polymerizer, and the stuff freezes. There probably isn't a machine in the whole European conquered territory that will work. And before they can get the secret, they'll be begging for peace in any terms. We're getting feelers already. Incidentally, your father thinks the can of glue was all that was left from his swipe after the machine exploded, but he seems to be satisfied to let time alone. One success is enough, I guess. He's got a couple of stars, too, now. If you get married—and it's about time—and Molly gets the rating she deserves, you're going to be quite a family!"

"Molly!"

"Molly," Custer said. "She found what you'd left in her apartment, Mike. That's why she wanted me here when you woke up—so you wouldn't get too excited when you saw her. It wasn't a piece from the Enigma, Mike. It's out in normal top secret now, and the Dane company even has part of a contract on it. Mike, Molly's found how to develop

magnetic current!"

Mike looked up at the ceiling, feeling the same shadow creep into his eyes that lay in Custer's. Molly had come back to her place in his mind, bringing warmth and content with her. But something else was there—a realization of the road they were headed down. Today the impossible magnetic current. Tomorrow, counter-inertia. Someday, capacitors that had no limit. It was the opening wedge to a tomorrow where science played god while man went on in the same old pattern of hate and death. And the future wasn't so far, after all.

Custer looked down at Mike with understanding, and dropped a hand onto Mike's shoulder. "Get well soon, boy. We're going to need you. I'll send Bruce and Molly in, in a minute or two."

Mike watched him go. From beyond the door, he heard the warm voice of Molly and the deeper warmth of his father's speech. In a minute, they'd be here, and he'd forget all the other for a while. But not for long. With the future that was coming, there was no time to waste.

Maybe they couldn't eliminate war. But as least they could be ready for it. That, apparently, was all the future could teach them, but it would be enough.

TAKE-OFF

Where the Readers take over and anything goes.

Dear Lester,

I like your format, the paper, the presswork, the art, and something more than half the contents of your May issue—which, for a first issue, is good enough and to spare.

PURSUIT is what I think of as a good bad story—i.e., I dislike the type of slam-bang suspense on general principle, but the treatment is adroit enough to make me like the individual specimen. I thought this was beautifully handled, except for the hero's method of testing the heroine's humanity, which struck me as not ingenious, not logical, and in conspicuously bad taste. As for the editorial note at the end of the story—well, it's an interesting field for speculation, but some of your questions have already been answered. As Sylvia Jacobs pointed out in "The Pilot and the Bushman" in *Galaxy*, your housewife can have a kitchen ten thousand miles away if she feels the whim, but that isn't a reasonable solution to the plumbing problem; whenever she wants to get rid of kitchen or other waste she can simply

transfer it to the Red Spot on Jupiter, the bottom of the Pacific Ocean, an arbitrary point in space—or the exact center of the living room of her rival in the Ladies' Literary and Chowder Society. Which suggests that the whereabouts of anybody's living quarters in your omni-potent world would have to be a carefully-guarded secret, which in turn opens up several new problems. Incidentally, here's a point I'd like to be informed on—is your housewife's psi faculty selective enough to remove the dust from her rugs? Or tobacco film from her teeth? Or her appendix from her intestine?

THE EGO MACHINE, for my money, is one of the funniest s-f stories ever written. I have now read it I don't know how many times, but I picked up the magazine, leafed through it, got snagged on one of St. Cyr's better monologues, and was hysterical in about three seconds. Pity you had to spell out ENIAC's calculus; much funnier when he burped math symbols.

YOUTH is a pleasant story, thanks to Asimov's craftsman-

ship, and in spite of Schecterson's giveaway illustrations—which must have made Isaac's hair stand on end. I think the story might have been stronger without the concealed-identity angle; if you can make both sets of characters convincingly human, why should it matter which is which?

Liked what there was of George O's book column, and hope you'll give him more space next time. Editorial unexceptionable except for your weaselwording on the dictionary definition of "space."

Very pleasantly surprised by the Orban cover. More, please. Ditto his black-and-whites, except those for TO EACH HIS STAR. *Very* pleased by Schecterson; he has my vote for the find of the year. Finally, the forecast sounds promising. I'll be looking forward to it.

Damon Knight
New York City

Thanks, Damon. And while we're wondering about the housewife with the psi factor, how about its effect on painless childbirth? Or those who like to eat, but can't afford to gain weight? And would there be such a thing as the game of bridge, since even honest people get obsessed there by a desire to win?

L. R.

Dear Sir:

SPACE stinks! It outrages my business instincts! Have you seen Ziff-Davis' new magazine? It's good! It will take, as did *Galaxy*. Lester del Rey wonders what a mature magazine means; let him read *ASF* or the two mentioned above. The day of the BEM is over, s-f has grown up, and only "mature" mags can and will continue in business. Your George O. Smith is a "mature" writer of s-f, both in his published work and in his reviews. He understands what the s-f fan is really like—not a jerk or moron but an adult, hungry for more than "Forever Amber" dressed up in a scientific aura and a bra.

Your cover picture is indicative of the fact that SPACE is doomed. It deserves to be. It insults intelligence. Why confuse buyers with an s-f title when you are just trashy fantastic fiction and appeal to eight-year-olds?

I've cooled off now, and why should I care whether you make or lose money? But, it's such a waste! In a world suddenly grown s-f conscious, who wants sex when one is hungry for knowledge, if only a smattering? The stands have dozens of cheap sexy magazines to sell; you can't compete with nudes and risqué jokes. Why try? I still think

George O. Smith would make the better editor.

Hy Freiman
331 Roebling St.
Brooklyn, N. Y.

You're right in thinking Smith would make a fine editor. But I'm afraid he'd be a little indignant at the suggestion that his stories are so "mature" that they contain no sex! Have you really read said stories, now? "Who wants sex?" you ask. Take a look, carefully, and you'll find about 99 per cent of all mature people seem to engage in it to some degree! Maybe you don't like it—and that's your right. But I can't go along with a definition of maturity which includes the adolescent horror at sex and the female body!

L. R.

Dear Lester:

Your editorial didn't carry the analogy quite far enough. You should have pointed out that not a few babies happen by mistake. Also, perhaps, that many turn out to have red hair which is, inexplicably, characteristic of neither supposed parent.

Leaving you to figure out how much of the above actually applies to SPACE, I will quit being, er, subtle. Let me make it clear, however, that I honestly did find your editorial to be middlin' jerky. None but the

most rabid fans would even have known SPACE was a brand new magazine if you hadn't come right out and said so. Half the reading population would have been sending you money for back issues, which you could have pocketed slyly while consulting time tables for East Wichita. As it is, people will shrug and say, "Ho-hum, another new magazine," because that's what it has become stylish to say. But I, having examined my conscience to eliminate extraneous influences, and judging solely on the contents of the magazine that reclines seductively before me, say: SPACE already has much of the dignity, maturity (oops, dirty word!), and general lack of self-consciousness other magazines spend years acquiring, and in general looks like an old and valued friend already.

You missed another bet by not getting a navel orange advertisement for your front cover—or did you steal a navel orange advertisement and ink out the sales copy? Kidding aside, I like the cover. Hang on to Orban, whatever else you do. The gal has some solidity to her, for a change. I could picture myself . . . well, never mind. Any complaints I might make would be minor; comparatively speaking, this is a masterpiece.

On the inside, Orban runs

rings around the other illustrators. Schecterson fails miserably at imitating Dolgov; Gari is a doodler; Harrison is capable of a hell of a lot better than he did. But the illustrations themselves are superb compared to the layout, which frankly stinks, being the one real blot on the magazine. Compare the cramped and stunted title page for the Kuttner story with that for YOUTH—the latter has space (you should pardon the expression) in such gobs that I get the feeling of wild winds whistling through chinks in the wall-boards. Poor George's book reviews come out looking like a misplaced ad, too. If you can't get somebody on the staff that knows something about layout, fergoshsakes let the printer do it for you!

In rating the stories, the only difficulty came in assigning first place. I was not influenced by your possible reaction to my reaction to your story; it was just very tough to choose between PURSUIT and THE EGO MACHINE—purely on their own merits as stories. You and Henry both set difficult tasks for yourselves; humor is never easy and Hank has failed as well as succeeded at it in the past, whereas your own effort was a pretty wide departure from most of your past work. THE EGO MA-

CHINE gets my final nod for best yarn: I had to show my appreciation for the biggest, best and most sustained laugh I've had this year somehow. (You can console yourself, if you wish, with the thought that if Kuttner had done the editing your story would probably have come out on top). PURSUIT is certainly a damned fine job with gobs of suspense and excitement all through it, right up to the end. It's full of food for thought, too, although the thought always seems to end up in the same place no matter what direction it starts out in. This way lies madness!

Third spot goes to Jerry Sohl, a man to watch. He'd have chased you old fuddy-duddies even closer except that the story went somewhat to pieces in the end. Jerry went like blazes for the first half, but the rest did little aside from explaining at great length what had already happened.

Keep the features as they are, for me. (That's with the letter section, of course.) If I want articles, I know where to go for them; the more fiction you use, the better I'll like it. (A greater number of stories per issue is nice, by the way; if you use real long jobs, they can be balanced with several shorts.) George has a fresh, lively and honest ap-

proach to the reviews, so he's okay in that department for me. If you'll really discuss science-fiction in your editorials, and not just pat yourself on the back, you'll be doing something I've waited years to see and I'll buy the mag for that reason alone. I have nothing against your discussing science if you want to; I just think the fictional aspect is more appropriate. But nobody else, repeat nobody else, has succeeded in doing this yet. Them that don't pat themselves on the back stretch it a bit to pat somebody whose reaction will differ not a whit from that of the bedroom mirror. If you can be the exception to this, I won't give a damn what kind of stories you print—I'll still consider you the most honest editor in science-fiction. (with one possible exception whose initials are Robert Ward Lowndes).

So that's it. So far, I'm with you, and I think it will be worth sticking. If you fumble badly, I'll let you know. If you keep on doing the good job you've done so far, I may lapse into my normal silence. This being so, I feel justified in a wee touch of sentiment in welcoming the newcomer.

(May you live forever, *SPACE!*

Larry Shaw
New York, N. Y.

If we fumble at all, we'll want to know it!

I think you'll find that the make-up of SPACE improves with practice, Larry; our first job, it seemed, was to get good material—now that we feel we have that, we'll try to dress it up better as time goes on. As to the editorials, you'll have to judge for yourself. But I meant what I said, and I'll keep trying. After all, what better chance to use one for back-patting than when we found we could go monthly? It was hard to resist the urge—but our promise weighed heavily on our conscience, so we stuck to what we thought you'd want. Hope it is.

L. R.

Dear Lester,

When we found your magazine on the stands we were delighted. The cover promised so many good authors. We were also delighted when we found that our fourteen-year-old Phyllis had been reading *Astounding Science Fiction*. It has been in our house for years. She had picked one up and enjoyed it.

I read the short stories in SPACE first and enjoyed them. Until now we had bought only ASF because we couldn't find anything to compare with it. Perhaps this was it. Then I read PURSUIT and was appalled by

pages 32 to 34. Not for myself, but for my girls. I can't understand why you thought it was necessary to the plot to prove Ellen's virginity! Biology for fourteen-year-olds, yes; facts of life, yes. Science fiction by all means. Cheap provings of virginity—no!

We liked your magazine for ourselves, but we don't want to bother with one we have to hide from our children.

Helen C. Nolan
27 Avon St.,
Somerville, Mass.

You bring up a serious point, Mrs. Nolan. Frankly, I'm not sure of the answer. The modern books are filled with much stronger sex than this; many magazines are; and even the family magazines have grown more liberal. I also doubt that this would prove shocking to a young girl today. Yet, if you felt the sex was merely thrown in to get sex into the story, I must agree that it was in bad taste. There are cases where even ASF violates the normal moral taboos—because they don't always apply to s-f situations. There will always be times when I will include a story which is somewhat honest and frank. But I'll try to make sure in the future that it isn't done just to be "daring." And I'm sorry my own

story struck you as in bad taste. Blame it on the lack of skill, rather than the intent, please.

L. R.

Dear Mr. del Rey:

Quite a mag, SPACE STF. Despite the fact that the girl in the foreground of the cover is wearing a Bikini bathing suit and the rest of the people are wearing spacesuits (I'm used to that by now), I decided to buy the mag.

Would you like to know what I think the future would be like if the psi factor was made available?

Firstly, everything would have to be standardized: languages, governments would have to be combined to form a world government which would have to be democratic and ruled by more than one man. Perhaps there could be organizations, each a separate department, but all under the jurisdiction of the world government.

There might be a World Bureau of Investigation, a World Department of the Treasury, etc. The problem of crime could be eliminated for all time. Assuming that the psi factor was not hereditary, as each person was treated, he or she could be conditioned so that he or she would not use the new-found power to commit a crime. The only other

danger is of someone going insane. This could be taken care of, so to speak, by maintaining brain-wave scanners which could pinpoint any person whose mind snapped, no matter where he was.

The moon could become a resort (under the auspices of the World Amusement Bureau, of course). Alpha Centauri and other stars could be used to tap energy from, and also to give old Sol a charge when he starts to die out.

Brian St. Pierre
318 Earle Street
New Bedford, Mass.

Hmmm—just what would happen if someone with the psi factor working went insane?

L. R.

Dear Mr. del Rey:

I've just finished reading Volume one, Number one of SPACE and I want to congratulate you on an excellent selection of stories.

Unfortunately I can't extend my congratulations to cover the general make-up of the magazine. In comparison with the story content of the magazine the make-up was definitely second rate. On the cover, the work by Orban, we find that over-generous dash of brilliant color that most s-f magazine art depart-

ments use to satisfy the circulation department. The colors are the immediate eye-drawing type but once the potential reader finds his eyes drawn to a cover some little part of his brain takes over. Assaying the cover with reason (and not stimulus-response) leaves much to be desired!

I WILL say that the inside illustrations were much better but I can't get over the feeling that the type of paper you use leaves me with. Can the paper type be improved?

The reason for this letter is an appeal. I would like to contact any fans (or semi-fans) that own a tape recorder. At one time there was a club called WIRTZ organized which brought together those fans that owned wire recorders and I've heard that the membership received a great deal of pleasure from this club. TAPE recorders have some advantages over wire recorders. Editing (the cutting out of unwanted material that was recorded) is much easier because, with plastic tape, all one needs is a scissor and some scotch tape. The fidelity on the plastic tape is much higher thus making music recordings better and "crisper." With these advantages, and the growing popularity of home tape recorders, I believe that we have an excellent

basis for a pleasant and profitable fan club.

Lee D. Quinn
Box 1199,
Grand Central Station
New York 17, N. Y.

I wish you all the luck in the world with your tape recording organization, Mr. Quinn. Judging by the number of tape recorders at the Chicago Convention, you should have no trouble. On the paper we use—well, don't expect too much improvement for a while. There's still a paper shortage on. But we'll keep working on it, you may be sure. L. R.

Dear Ben Peters:

This is the third try I've made to write a letter of congratulations to your new publication. I've decided to say just what I think with no attempt at tact.

I read the short stories first. They were average. Then the novel, PURSUIT. It reeked. Then YOUTH—a masterpiece. I started it before supper and just couldn't lay it down. Ever try to eat fried chicken while reading a magazine? The little gem at the end tickled me so that I told my wife about it and resolved to make my debut as a letter-to-the-editor fan.

The first letter I wrote advised sending del Rey to the far side of Mercury and giving Asimov a medal for literary genius.

Imagine my surprise when I started to address the letter and found author and editor were one.

Well, I started over and tried to tone down the criticism on PURSUIT. I even went back over it to look for some good points. It still stinks. It's too long, boring, implausible, and the loss of virginity of the heroine strikes a jarring note.

You can see why I had to send this to you. Del Rey wouldn't have let it get by File X (the waste-basket) and I am interested in more and better science fiction.

David Neave
Rt. 1
Guilford, N. C.

As I wrote Mr. Neave, there's no File X—because we really want honest criticism from the readers. Without gripes as well as bouquets, it's impossible to tell what is wanted, and we badly need that information. When an editor runs one of his own stories, he's asking for brickbats, naturally. He isn't shocked when he gets them. All I can say is thanks to Mr. Neave for an honest letter, and I'm happy he found even one story he considered a masterpiece. L. R.

Dear Mr. del Rey:

I'm taking advantage of the

opportunity to write a letter about an initial appearance. I've written letters to other editors, before, of course, but this is the first time I've picked up Volume one, Number one, of a science-fiction book when it came out.

May as well start with the cover, since that is what I saw first. And my primary reaction was one of pleasure; the overall effect was attractive.

The title itself is attractive enough, but the way it was set up, it gives the impression that the title of your magazine is: SPACE 35¢ SCIENCE FICTION ASIMOV DEL REY KUTTNER. Would suggest more separation between the title itself and other matter that has to go on the cover.

Looking inside confirmed the satisfactory impression obtained from the cover; the Orban drawings were all fine, and the rest, while not outstanding, didn't repel me.

Editorial: decidedly okay. I like your prospectus and think you've made a fair start toward achieving it.

As to the stories—well, none of them were so bad as to merit catcalls from my quarter. I'd stack them up thus:

Best—PURSUIT. No apology needed for ye ed's running his own material when it is as good as this. In fact, I think it's a

worthy idea, even when the boss-man can't turn out much more than enjoyable material, simply because what he can do is to show the sort of thing he wants.

Good—THE EGO MACHINE. Sheer entertainment was obviously all that Kuttner was trying to do, and he did it.

Interesting—THE ULTROOM ERROR. I think it was an error to run this story directly after PURSUIT—if in the same issue with it at all—simply because it duplicated a number of story elements. Also, the story was not completely worked out for my money.

Not so good—YOUTH. The writing, here, I thought much better than the story itself, which was more of a philosophic discussion than anything else. As a story, I can't see it at any such length. TO EACH HIS STAR—well written, but again, the story didn't have enough to it; at the end, I just shrugged.

Hope you'll expand the book-review department. Smith's a good hand at this—but he should be given more space, I think. And if you have a letter-department, as you say you plan to, I hope you'll comment on the reader's remarks.

All in all, I think SPACE SCIENCE FICTION is off to a good start. While only two out of five stories really hit me, they

filled up most of the pages, so I got my money's worth.

Thanks again for the first issue, and I'll be looking forward to the next one!

Glen Monroe
Bronx, N. Y.

You're right about one of the reasons for running PURSUIT by the editor in the first issue. Another reason was that this story had been bought by the publisher before I was picked as the editor! And as you can see, I do plan to comment on letters. I always liked comments, and figure most people do also. So here they are.

L. R.

Dear Les:

After reading your story PURSUIT, I noticed your editorial note calling for letters on what you feel is a "humdinger of an idea" and was prompted by this thought: That your first impression when releasing the psi factor for both fans and writers to play with was, no doubt, nurtured by the sincere hope that here was something, with untold and limitless possibilities, something that would be snapped up enthusiastically and used in controversial letters and stories for some time to come. The question is: Did you consider carefully the amount of possible harm that might come from your wonderful idea?

Might it not give rise to a multitude of wacky letters much the same as those that followed when the first Shaver Mystery stories appeared? The thought of wading through future issues of SPACE SCIENCE FICTION and finding letters from would-be psi factor control experts practically nauseates me! Your assurance that letters (and possibly stories) of this type would be carefully screened would earn the undying gratitude of sincere science fiction fans.

Ben P. Jason
3971 East 71st St.,
Cleveland 16, Ohio

You've got a good point, Mr. Jason. Okay, here's your assurance that we will not use the purely wacky letters that might be sent by cultists or cranks on such subjects. You're quite right about my reason for throwing out what I hope are good ideas, and I don't want to see SPACE turning into a magazine which will serve the exact opposite purpose of the scientific method of thought which we all want in science fiction. On the other hand, no serious letter will ever go by without a careful consideration. We want to see honest opinion and any new light on the ideas we present. And, above all, we want to know what the readers think.

L. R.

COMING EVENTS

The important news this time is that SPACE SCIENCE FICTION is going monthly! The next issue will be dated December, and will be on the stands only one month from this issue. It's a change we wanted and planned for, but one which we never hoped we could announce in our third issue. However, the splendid response that has been shown by our readers has enabled us to make this step much sooner than we thought possible. We'd like to express our thanks to every one of you, and to assure you that we'll try to make it an even better magazine from now on.

We are sure we can. For one thing, this change means that we will now be able to use the full, book-length novels which have always been the most popular form of science fiction. We won't use serials unless they're too good to miss, naturally; but since some of the best authors in science fiction do their real work in these longer lengths, you can count on some excellent ones in the near future. And the change also means that we'll be an even more important market for novelettes and short stories, so we'll be able to go out and get better stories for you all along the line.

Coming up for next month's issue will be one of our best line-ups of stories to date, but the change makes it a little hard to tell exactly what precise stories will be included. We have a story by Damon Knight, entitled THE WORSHIPPERS, which deals with one of the most cock-eyed extra-terrestrial races we've seen yet, and a man who really found his mission among them—or so he thought. H. B. Fyfe has a story of a world where escape seemed impossible and where two men found their destinies at cross-purposes that achieves a really fine emotional punch. And there's an unusual article by Milton Rothman, dealing with the things that science doesn't know. If you think that fact is catching up with fiction, be sure to read this. There'll be room for good stories of speculation for quite a few years yet! Naturally, since we feel articles must be just as entertaining as fiction, you'll enjoy it.

We're sure you won't want to miss it. And for those who have had trouble in getting our previous issues, we'd like to remind you again that you can be sure of every copy if you subscribe—only \$3.50 for twelve top-notch issues!

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